



***NONE OF YOU ARE LEAVING HERE UNTIL  
YOU HAVE CHOSEN YOUR CAREER  
PATHWAY!***

# MEETING THE NEEDS OF UTAH'S SECONDARY STUDENT IN CAREER AND TECHNICAL EDUCATION

Report to the Legislative Education Interim Committee  
and the Honorable Jon M. Huntsman, Governor



Utah State Board of Education  
2007-2008 School Year

# Meeting the Needs of SECONDARY CAREER AND TECHNICAL EDUCATION STUDENTS

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## INTRODUCTION

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For nearly a century, career and technical education (CTE) has been an essential part of Utah public education. Changes have occurred in career and technical education through the years; today's career and technical education opens a world of career opportunities to Utah high school students. Career and technical education can lead directly to high skill jobs with great pay and career potential, or to opportunities for further training and education. The paths to these careers start in high school and continue through continuing education alternatives.

The Utah State Board of Education is charged by statute to provide leadership for career and technical education programs delivered by school districts in grades 7-12. Utah school districts have nationally recognized career development, comprehensive guidance, competency skill certification, occupational preparation, and internship programs that serve secondary students. In Utah's high schools, students are required to earn at least one full credit in a career and technical education course to qualify for graduation. Many students enroll in more career and technical education courses and leave high school well prepared for work or continuing education. Career and technical education gives students choices for their future. Annually more than 198,000 students in grades 7-12 participate in career and technical education courses.

Career and technical education opportunities are also provided through cooperative offerings with Utah colleges and universities, including the Utah College of Applied Technology (UCAT). Career and technical education courses make up 37% of the concurrent credit hours awarded by Utah's higher education institutions. Annually over 70,000 credit hours are earned by high school students in career and technical education concurrent enrollment courses. Secondary students also participate in career and technical education through UCAT, where last year 11,801 students participated in excellent training opportunities.

Utah Code 53A-15-202 provides that the Utah State Board of Education:

*(5) shall, after consulting with local school districts, prepare and submit an annual report to the governor and to the Legislature's Education Interim Committee by October 31 of each year detailing:*

*(a) how the applied technology education needs of secondary students are being met; and (b) what access secondary students have to programs offered:*

*(i) at applied technology colleges; and*

*(ii) within the region served by Snow College.*

This report has been prepared for the State Board in fulfillment of this statute.



## SOURCES OF DATA

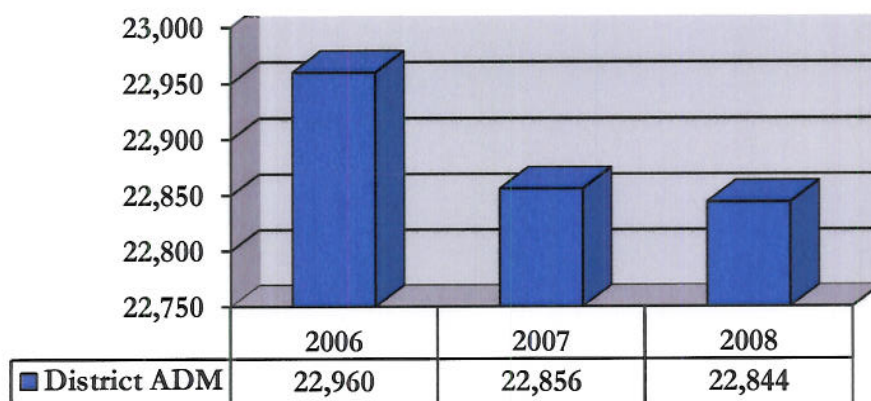
Data in this report were collected and compiled by the Utah State Office of Education and the Utah College of Applied Technology (UCAT). Additionally, school districts and regional partnerships participated by responding to surveys which were collected and summarized by the Utah State Office of Education.

## SCHOOL DISTRICT CTE PROGRAMS

The Utah State Board of Education provides leadership for career and technical education in the state's public secondary schools, with school districts providing 91 percent of the instruction. Students in local school districts enroll in many excellent programs. School districts exercise forward-looking leadership in maintaining and expanding career and technical education opportunities for their students. Through creative partnerships with higher education, school districts assure efficient and effective career and technical education delivery. Utah school districts have well-developed, successful career and technical education programs that meet many career awareness, career exploration, and career preparation needs for public school students.

- School districts deliver 91 percent of all career and technical education membership hours in grades 9-12.
- Headcount in school district career and technical education courses decreased 1.10 percent (1,594 students) in 2008 to 143,684 students, from 145,278 students in 2007.
- School district career and technical education Average Daily Membership (ADM) decreased .05 percent (12 students) in 2008 to 22,844 from 22,856 in 2007.

**District Secondary CTE Average Daily Membership (ADM)**

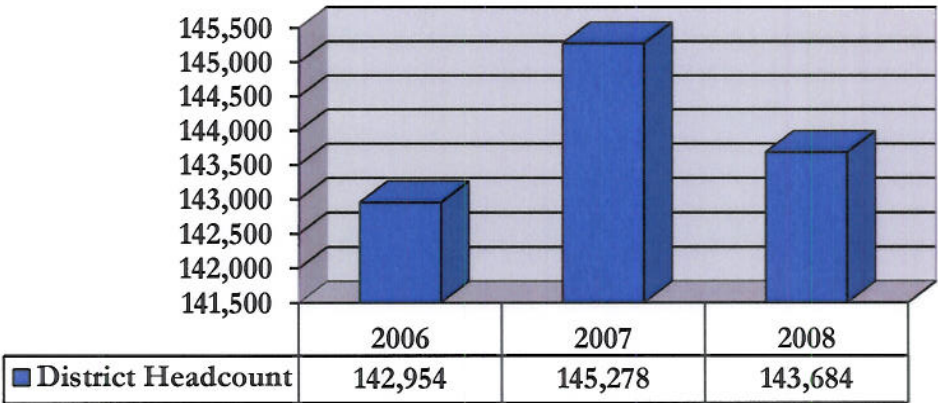


■ Decrease of 12 ADM or .05 percent



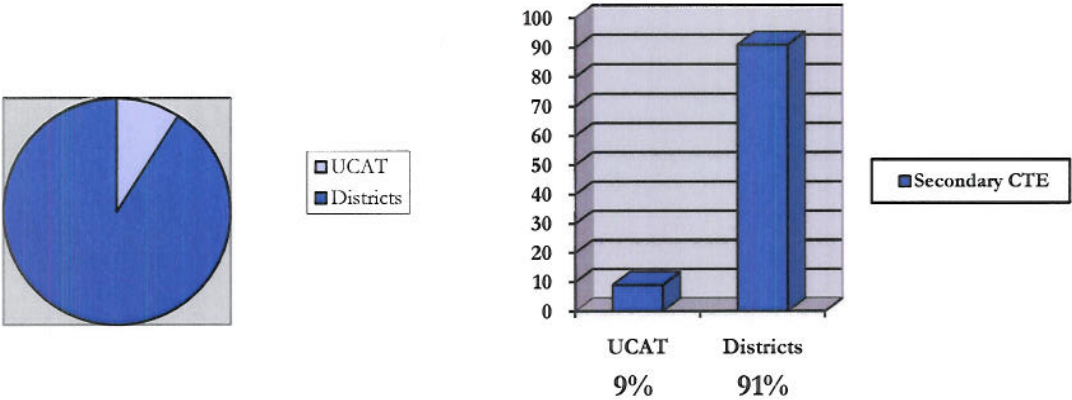
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District Secondary CTE Headcount



▪ Decrease of 1,594 students or 1.10 percent

Percentage of Effort for Secondary CTE Students by Districts and by UCAT  
(Districts provide 91% and UCAT provides 9% of training)



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## UCAT SECONDARY PROGRAMS

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UCAT secondary student enrollment increased 1.18 percent and membership hours decreased 1.49 percent in the 2007-08 school year. UCAT is delivering value-added services in many areas of the state. School district respondents indicate secondary students continue to receive about the same level of service from UCAT training programs as they have had in the past.

In 2007-08, UCAT provided 9 percent of high school career and technical education program opportunities (as measured in membership) in grades 9-12.

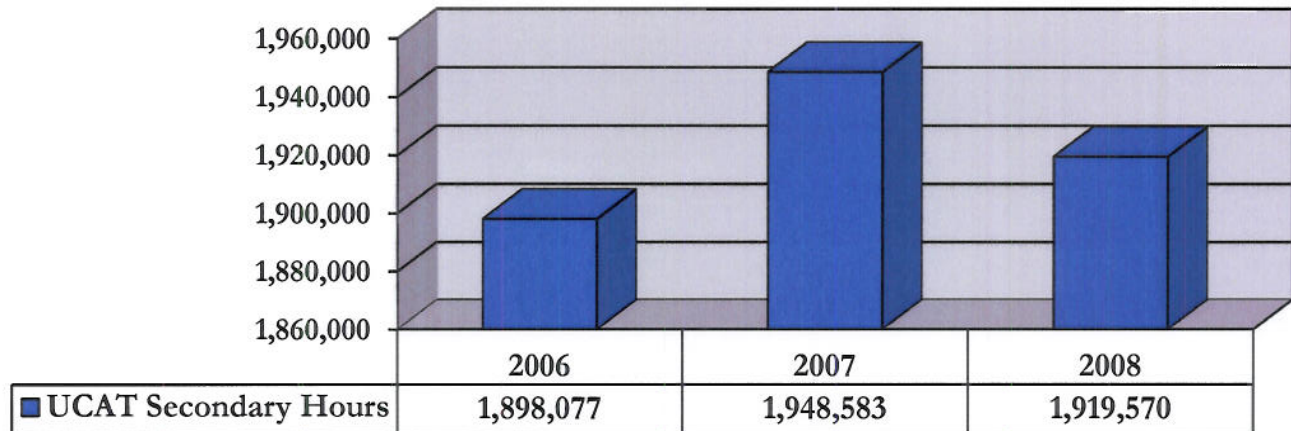
- UCAT provided services to 11,801 secondary students and 1,919,570 membership hours.
- The headcount enrollment for secondary students in UCAT increased 1.18 percent (138 students); and membership hours for secondary students decreased 1.49 percent (29,014 hours) in 2008 as compared to 2007.

District respondents to a Utah State Office of Education survey reported mostly positive attitudes toward UCAT services.

- Most respondents reported fair to excellent collaboration, planning, and relationships with regional UCAT campuses.
- Most responding districts reported availability of UCAT services to their students, with four districts reporting limited or no availability of UCAT programs.
- The majority of districts responded that UCAT services supplement or add value to district programs with eight districts reporting UCAT programs interfere, duplicate, or detract with district CTE programs.
- Respondents reported concern with the value of the AAT degree.
- Districts responded that good planning and articulation is occurring.

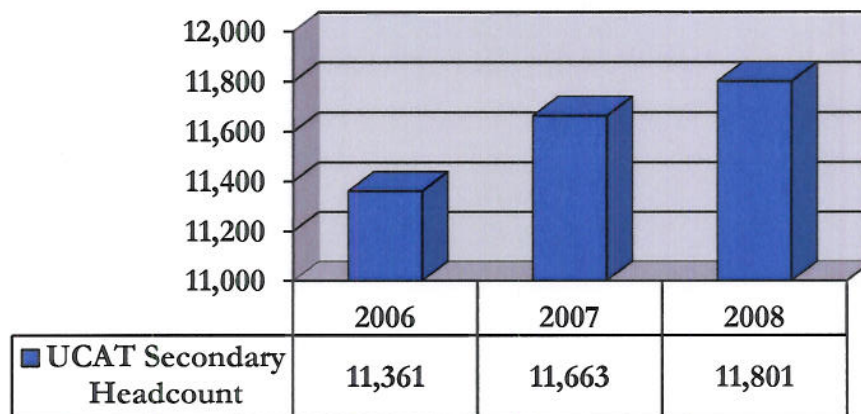
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### UCAT Secondary Membership Hours



▪ Decrease of 29,014 hours or 1.49 percent

### UCAT Secondary Headcount



▪ Increase of 138 students or 1.18 percent



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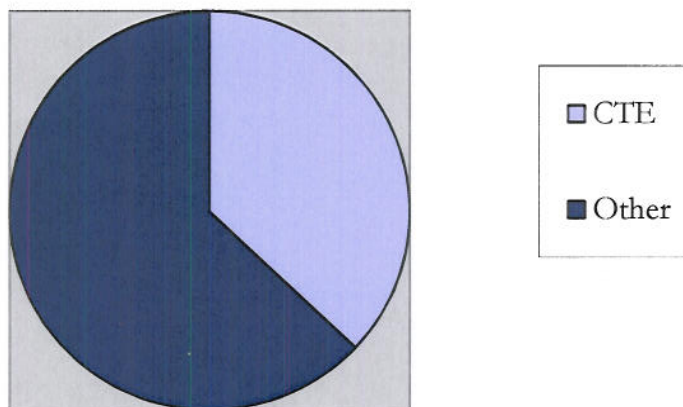
## COLLEGE AND UNIVERSITY PARTNERSHIPS

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Utah's colleges and universities are important partners in providing a full range of career and technical education offerings to secondary students through concurrent enrollment and other articulation arrangements which result in credit.

Concurrent enrollment in career and technical education course work is provided to high school students, with credit granted by both high schools and by cooperating credit-granting (non-UCAT) colleges or universities. Career and technical education courses make up 37% of the concurrent credit hours awarded by Utah's higher education institutions. Annually over 70,000 hours are earned by high school students in career and technical education concurrent enrollment courses. Concurrent enrollment opportunities are expanding as High School to College and Career Pathways are developed and open more career and technical education opportunities for secondary students in higher education.

Concurrent Enrollment  
37% In CTE Courses



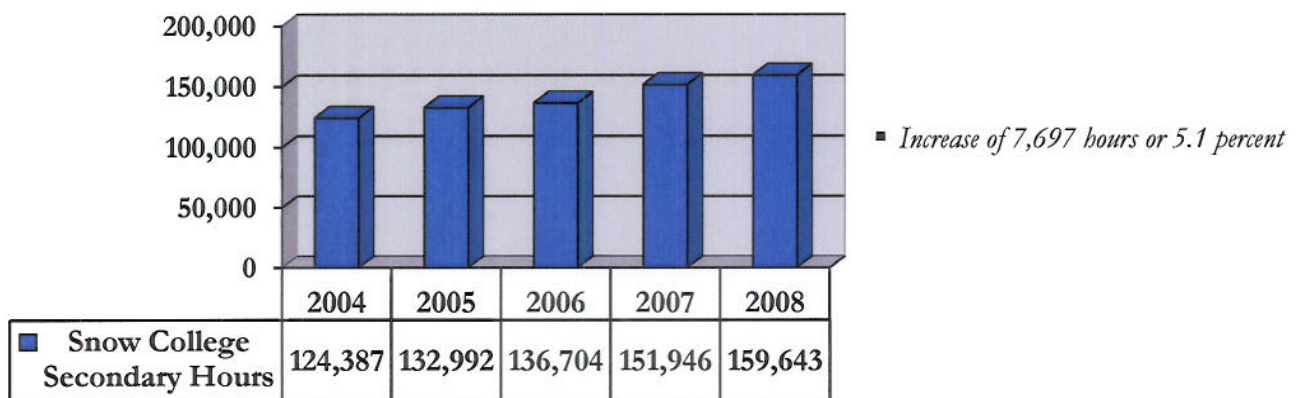
## Snow College

In the 2003 legislative session, HB161 merged Central Applied Technology College (CATC) with Snow College. The legislation requires Snow College to continue to serve secondary students at no charge and to work to provide services to the outlying school districts in the region. It changed the UCAT oversight regional board to and advisory board. Snow College can provide credit or non-credit to high school students. Since this legislative change, the school district personnel and Snow College staff have been working very hard to ensure that the same level of service and funding for secondary students is retained.

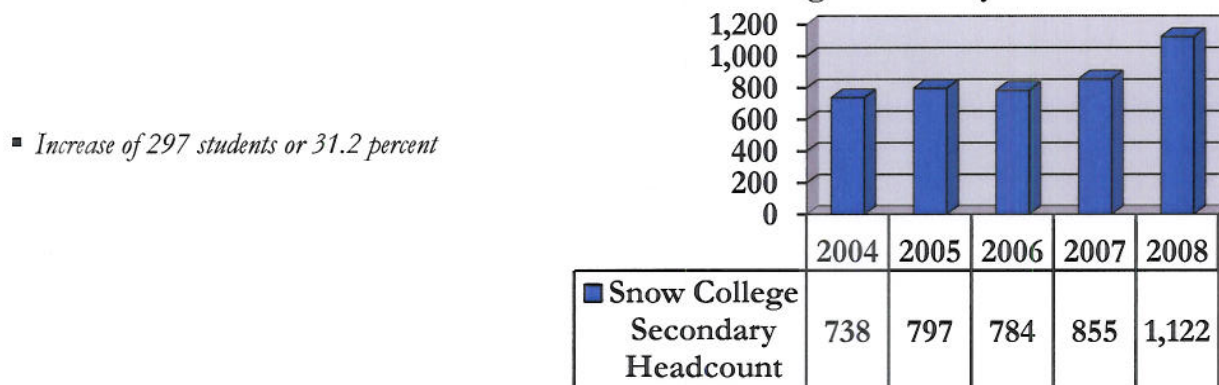
Snow College Richfield continues to provide programs to secondary students in the Central Region. In 2007-08 secondary membership hours increased from 151,946 in 2007 to 159,643 in 2008. Headcount increased from 855 in 2007 to 1,122 in 2008. Most school districts in this region report declining total enrollment, while secondary participation in Snow College CTE programs increased.

Snow College	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	
<i>Headcount</i>	738	797	784	855	1,122	267 or 31.2%
<i>Membership Hours</i>	124,387	132,992	136,704	151,946	159,643	7,697 or 5.1%

**Snow College Secondary Membership Hours**



**Snow College Secondary Headcount**



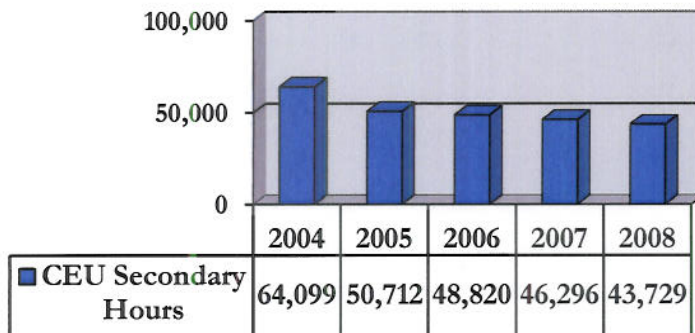
## College of Eastern Utah

In the 2007 legislative session the Southeast Applied Technology College (SEATC) was merged with the College of Eastern Utah (CEU). The legislation requires CEU to continue to serve secondary students at no charge and to work to provide services to the outlying school districts in the region. It changed the UCAT oversight regional board to an advisory board. CEU can provide credit or non-credit to high school students. Since this legislative change, the school district personnel and CEU staff have been working very hard to ensure that the same level of service and funding for secondary students is retained.

CEU continues to provide programs to secondary students in the Southeast Region. In 2007-08 secondary membership hours decreased from 46,296 in 2007 to 43,729 in 2008. Headcount decreased from 382 in 2007 to 298 in 2008. Most school districts in this region report declining total enrollment.

CEU	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	
<i>Headcount</i>	351	389	379	382	298	(84) or -21.9%
<i>Membership Hours</i>	64,099	50,712	48,820	46,296	43,729	(2,567) or -5.5%

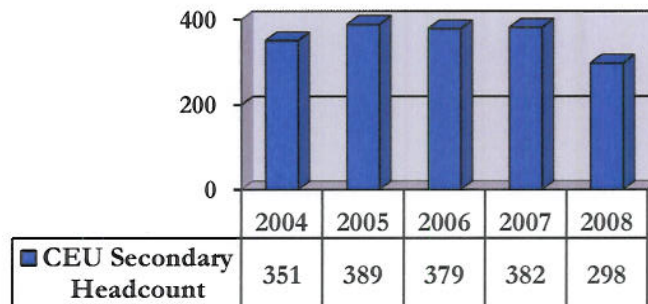
### CEU Secondary Membership Hours



▪ Decrease of 2,567 hours or 5.5 percent

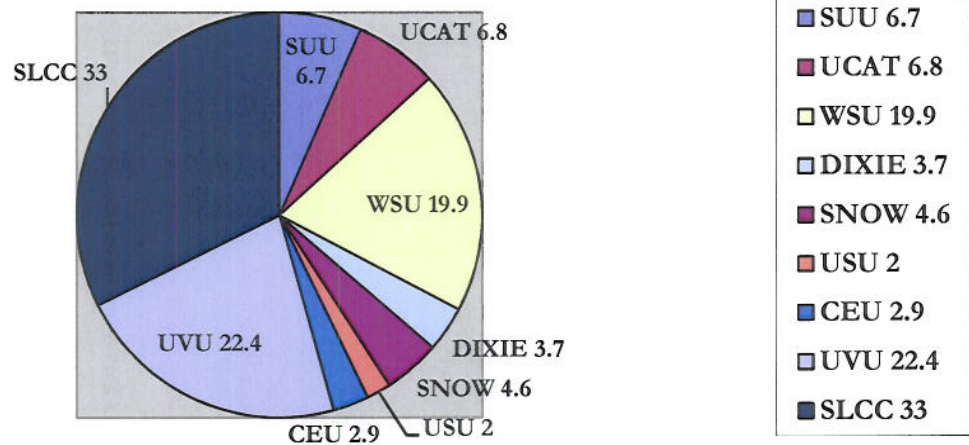
▪ Decrease of 84 students or 21.9 percent

### CEU Secondary Headcount

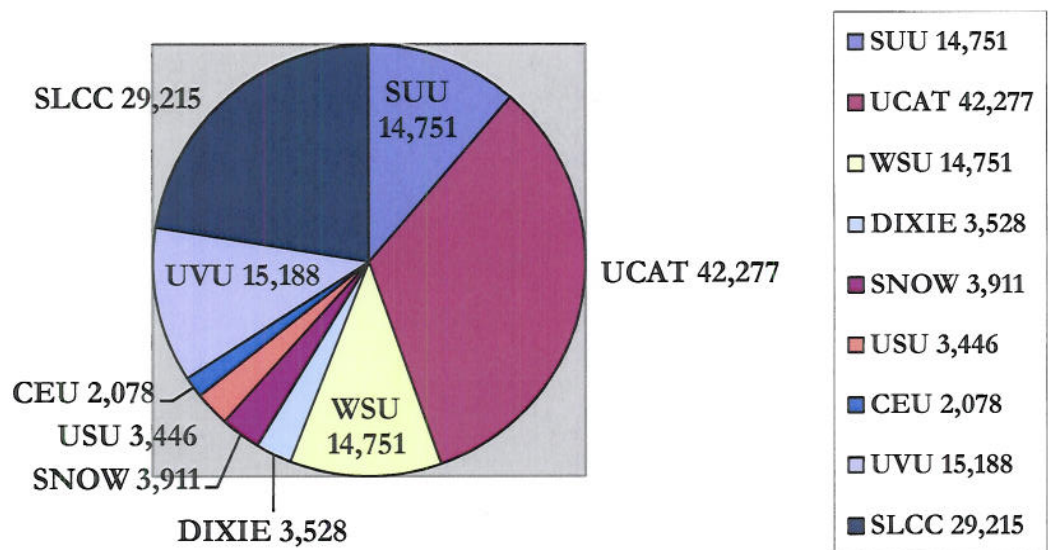




### CTE in Higher Education As Measured in FTE



### CTE in Higher Education As Measured in Headcount



## KEY DATA

The following tables display the key data in the Utah State Office of Education analysis of career and technical education programs and enrollment for secondary students.

**Table 1: School District Change in Student Headcount and ADM**

School District Career and Technical Education	2007	2008	Difference 2007 to 2008
Student Headcount	145,278	143,684	(1,594) -1.10%
Average Daily Membership (ADM)	22,856	22,844	(12) -0.05%

Note: Secondary student headcount is unduplicated by school. Prepared by USOE, CTE Division, 10/08.

**Table 2: Historical School District CTE Student Headcount and ADM**

School District Career and Technical Education	2003	2004	2005	2006	2007	2008
Student Headcount	134,160	137,122	138,169	142,954	145,278	143,684
Average Daily Membership (ADM)	22,322	22,503	23,331	22,960	22,856	22,844

Prepared by USOE, CTE Division, 10/08.

**Table 3: UCAT Change in Secondary Student Headcount and Membership**

UCAT - Secondary Student	2007	2008	Difference
Headcount	11,663	11,801	138 1.18%
Membership Hours	1,948,583	1,919,570	(29,014) -1.49%

Source: UCAT Data 2008

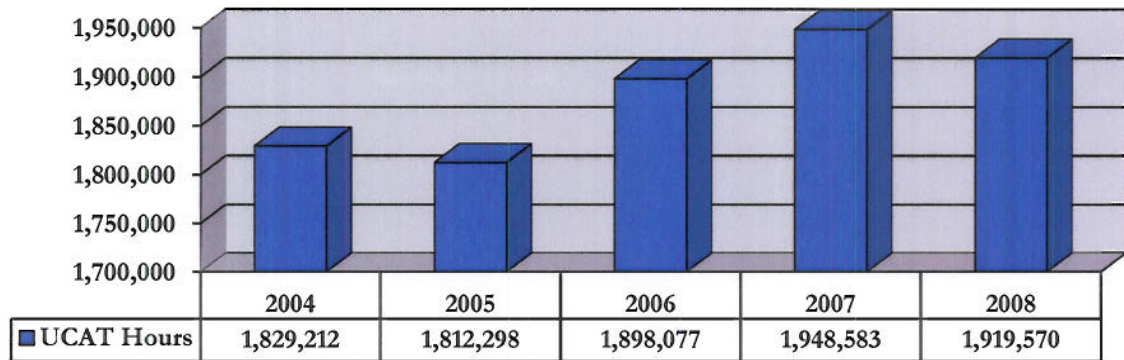
**Table 4: Historical UCAT Secondary Student Headcount and Membership**

Year	UCAT Secondary Membership Hours	UCAT Secondary Student Headcount
2008	1,919,570	11,801
2007	1,948,583	11,663
2006	1,898,077	11,361
2005	1,812,298	11,169
2004	1,829,212	11,465

Source: UCAT Data 2004-2008

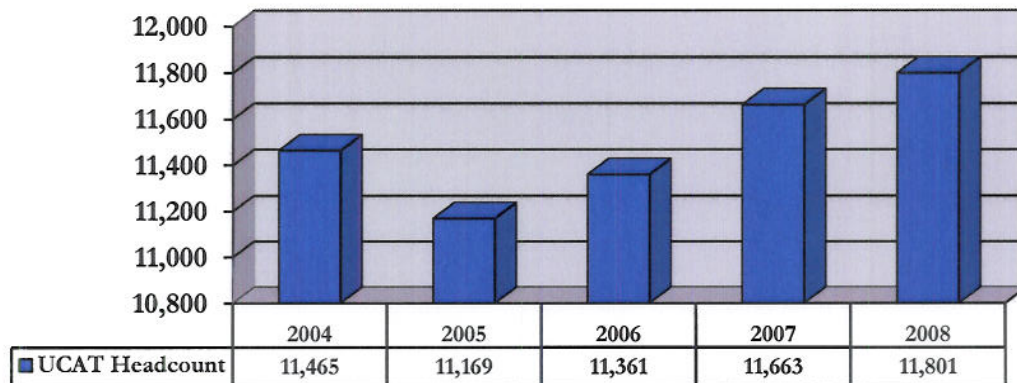
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UCAT Secondary Student Membership Hours



▪ Decrease of 29,014 hours or 1.49 percent

UCAT Secondary Student Headcount



▪ Increase of 138 students or 1.18 percent



Table 5: UCAT Secondary Student Headcount and Membership Change 2008

	UCAT Region Campus	2007	2008	Difference	Percent
Bridgerland	Headcount	1,950	2,114	164	8.41%
	Membership	306,072	328,019	21,947	7.17%
Davis	Headcount	1,929	1,968	39	2.02%
	Membership	328,789	285,846	(42,943)	-13.06%
Dixie	Headcount	591	642	51	8.63%
	Membership	94,708	97,481	2,773	2.93%
Mountainland	Headcount	1,813	1,881	68	3.75%
	Membership	433,843	472,994	39,151	9.02%
Ogden-Weber	Headcount	2,289	2,277	(12)	-0.52%
	Membership	326,664	309,079	(17,585)	-5.38%
SLTooele	Headcount	266	351	85	31.95%
	Membership	31,762	42,404	10,642	33.50%
Southwest	Headcount	1,171	1,080	(91)	-7.77%
	Membership	146,743	123,498	(23,245)	-15.84%
Uintah Basin	Headcount	1,654	1,488	(166)	-10.04%
	Membership	280,002	260,249	(19,753)	-7.05%
UCAT TOTAL	Headcount	11,663	11,801	138	1.18%
	Membership	1,948,583	1,919,570	29,014	-1.49%

Source: UCAT Data 2008

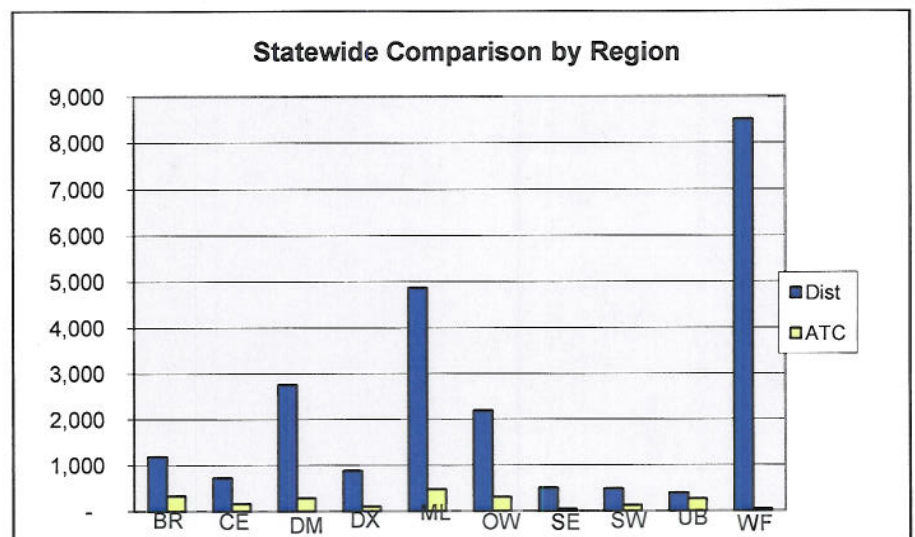
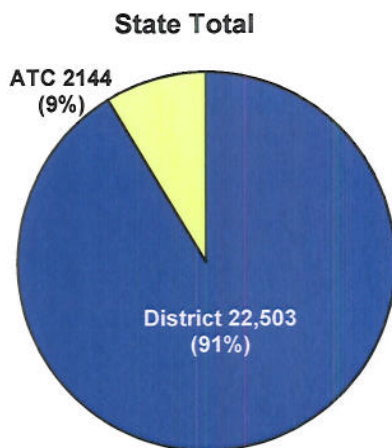
Table 6: UCAT Historical Secondary Student Headcount and Membership

UCAT Campus		FY 2004	FY 2005	FY 2006	FY 2007	FY 2008
Bridgerland	Headcount	1,874	1,898	1,949	1,950	2,114
	Membership	288,381	274,445	297,415	306,072	328,019
Davis	Headcount	2,131	1,945	1,987	1,929	1,968
	Membership	414,985	311,324	328,768	328,789	285,846
Dixie	Headcount	384	401	523	591	642
	Membership	85,253	107,175	95,024	94,708	97,481
Mt. Land	Headcount	1,974	1,949	1,889	1,813	1,881
	Membership	390,225	399,936	413,192	433,843	472,994
Ogden/Weber	Headcount	2,364	2,168	2,171	2,289	2,277
	Membership	274,214	305,378	323,162	326,664	309,079
SL/Tooele	Headcount	527	488	377	266	351
	Membership	52,550	50,223	45,997	31,762	42,404
Southwest	Headcount	995	951	993	1,171	1,080
	Membership	107,028	117,548	129,896	146,742	123,498
Uintah Basin	Headcount	1,216	1,369	1,472	1,654	1,488
	Membership	216,576	246,270	264,623	247,717	260,249
TOTALS	Headcount	11,465	11,169	11,361	11,663	11,801
	Membership	1,829,212	1,812,298	1,898,077	1,948,583	1,919,570

Source: UCAT Data 2008

**Table 7: Percentage of Total CTE Average Daily Membership (ADM) Grades 9-12 Provided by School Districts and UCAT 2007-08**

Region	School District		UCAT	
	Percent of Total Secondary CTE Membership 2007-08		Percent of Total Secondary CTE Membership 2007-08	
BR - Bear River Region (BATC)	1,188	78%	331	22%
CE - Central Region (Snow)	717	82%	161	18%
DM - Davis Morgan Region (DATC)	2,756	91%	289	9%
DX - Dixie Region (DXATC)	876	90%	98	10%
ML - Mountainland Region (MATC)	4,868	91%	478	9%
OW - Ogden-Weber Region (OWATC)	2,189	88%	312	12%
SE - Southeast Region (SEATC)	501	92%	44	8%
SLT - Salt Lake-Tooele Region (SLTATC)	8,513	99.5%	43	.5%
SW - Southwest Region (SWATC)	483	79%	125	21%
UB - Uintah Basin Region (UBATC)	391	60%	263	40%
<b>State Total</b>	<b>22,503</b>	<b>91%</b>	<b>2,144</b>	<b>9%</b>



ATC membership includes both the courses provided at college campuses and ATC courses provided at the high schools. Central and Southeast Region membership is for students attending Snow College and CEU reported by Snow College and CEU. Average daily membership (ADM) is full-time equivalent based on 990 hours. Prepared by USOE, CTE Division, 10/08



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## APPENDICES

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Appendix A	Career and Technical Education (School District) Membership, Enrollment Comparisons Grades 9-12
Appendix B	UCAT Membership Hours and Student Count for Secondary Students Aggregated by Year
Appendix C	CTE 9-12 Average Daily Membership (ADM) by Region–FY2008
Appendix D	Utah State Office of Education Survey and Results 2007-08: How the CTE Needs Are Being Met Through UCAT
Appendix E	High School to College and Career Pathway Example
Appendix F	CTE Student Testimonials

### CTE Membership, Enrollment Comparisons Grades 9-12

DISTRICT	Enrollment		Aveage Daily Membership		Membership
	9-12 Total	9-12 CTE	9-12 Total	9-12 CTE	9-12 CTE
	Enrolled 08	Enrolled 08	ADM-08	ADM - 08	Membership 08
ALPINE	16,500	14,544	15,064	2,460	3,525,869
BEAVER	455	379	453	75	94,537
BOX ELDER	3,313	3,075	3,073	453	431,064
CACHE	4,055	3,926	3,854	573	525,239
CARBON	1,135	1,148	1,049	169	145,424
DAGGETT	40	51	42	8	8,100
DAVIS	18,773	18,302	17,681	2,972	3,753,329
DUCHESNE	1,294	1,285	1,132	153	153,383
EMERY	719	640	738	80	100,255
GARFIELD	289	296	281	81	91,796
GRAND	460	445	460	70	63,294
GRANITE	20,182	18,935	18,165	2,739	3,910,255
IRON	2,434	2,244	2,293	271	195,130
JORDAN	23,708	21,642	22,339	3,661	5,031,501
JUAB	618	480	565	72	91,033
KANE	385	355	367	66	83,077
MILLARD	935	908	937	174	228,879
MORGAN	692	636	644	83	104,392
NEBO	7,183	6,604	6,713	1,149	893,158
NO. SANPETE	711	646	707	123	154,734
NO. SUMMIT	313	292	318	41	52,270
PARK CITY	1,388	1,202	1,332	68	98,605
PIUTE	94	91	96	14	17,347
RICH	140	133	155	18	16,509
SAN JUAN	972	1,044	931	182	229,737
SEVIER	1,330	1,341	1,252	188	234,434
SO. SANPETE	913	664	873	99	124,613
SO. SUMMIT	402	393	403	63	90,663
TINTIC	95	89	91	12	14,762
TOOELE	3,377	3,339	2,982	671	494,481
UINTAH	1,554	1,533	1,396	230	233,447
WASATCH	1,238	1,181	1,191	210	151,210
WASHINGTON	7,058	6,590	6,607	876	747,172
WAYNE	163	167	162	35	44,420
WEBER	9,007	9,181	8,409	1,750	2,441,578
SALT LAKE	6,522	6,994	5,921	1,007	777,637
OGDEN	3,390	3,367	2,926	439	472,236
PROVO	4,001	4,082	3,737	862	1,114,252
LOGAN	1,683	1,457	1,640	136	122,467
MURRAY	2,093	2,109	2,000	389	550,050
AMES Charter	430	296	411	12	15,417
ALA Charter	538	302	422	5	6,650
East Hollywood C	314	340	321	8	10,224
Intech Charter	131	141	113	8	12,139
Itineris Charter	203	190	135	37	52,830
NUAMES Charte	328	347	452	41	59,664
Paradigm Charter	219	70	192	2	2,515
UCAS Charter	332	208	295	9	11,809
TOTAL	152,109	143,684	141,321	22,844	27,783,587
	Oct 1 2007 Fall Enr Count 9-12	Unduplicated by School - FY 08	ADM by Dist FY 08 Report	FY 08 Prelim 9/22/08	FY 08 Prelim 9/22/08
*membership = Pati 9-12 level 00 + Level 01			* ADM is the "full time equivalent"		
08 - 9-22-08 preliminary					







# UTAH COLLEGE OF APPLIED TECHNOLOGY

## BUDGET RELATED STUDENT HEADCOUNT HISTORY (1)

2004 - 2008

		FY 04	FY 05	FY 06	FY 07	FY 08	FY 07 to 08 Growth (Student Headcount)	FY 07 to 08 Growth (Percent)
BATC	Secondary	1,874	1,898	1,949	1,950	2,114	164	8.41%
	Post Secondary	5,269	4,828	5,617	5,019	5,396	377	7.51%
	<b>TOTAL</b>	<b>7,143</b>	<b>6,726</b>	<b>7,566</b>	<b>6,969</b>	<b>7,510</b>	<b>541</b>	<b>7.76%</b>
DATC	Secondary	2,131	1,945	1,987	1,929	1,968	39	2.02%
	Post Secondary	3,209	4,303	3,845	4,089	5,215	1,126	27.54%
	<b>TOTAL</b>	<b>5,340</b>	<b>6,248</b>	<b>5,832</b>	<b>6,018</b>	<b>7,183</b>	<b>1,165</b>	<b>19.36%</b>
DXATC	Secondary	384	401	523	591	642	51	8.63%
	Post Secondary	468	379	1,069	1,526	2,208	682	44.69%
	<b>TOTAL</b>	<b>852</b>	<b>780</b>	<b>1,592</b>	<b>2,117</b>	<b>2,850</b>	<b>733</b>	<b>34.62%</b>
MATC	Secondary	1,974	1,949	1,889	1,813	1,881	68	3.75%
	Post Secondary	5,928	4,985	4,964	3,371	3,676	305	9.05%
	<b>TOTAL</b>	<b>7,902</b>	<b>6,934</b>	<b>6,853</b>	<b>5,184</b>	<b>5,557</b>	<b>373</b>	<b>7.20%</b>
OWATC	Secondary	2,364	2,168	2,171	2,289	2,277	(12)	-0.52%
	Post Secondary	5,161	5,637	5,632	6,307	6,772	465	7.37%
	<b>TOTAL</b>	<b>7,525</b>	<b>7,805</b>	<b>7,803</b>	<b>8,596</b>	<b>9,049</b>	<b>453</b>	<b>5.27%</b>
SLTATC	Secondary	527	488	377	266	351	85	31.95%
	Post Secondary	1,187	835	1,090	1,178	1,583	405	34.38%
	<b>TOTAL</b>	<b>1,714</b>	<b>1,323</b>	<b>1,467</b>	<b>1,444</b>	<b>1,934</b>	<b>490</b>	<b>33.93%</b>
SWATC	Secondary	995	951	993	1,171	1,080	(91)	-7.77%
	Post Secondary	647	531	813	684	1,393	709	103.65%
	<b>TOTAL</b>	<b>1,642</b>	<b>1,482</b>	<b>1,806</b>	<b>1,855</b>	<b>2,473</b>	<b>618</b>	<b>33.32%</b>
UBATC	Secondary	1,216	1,369	1,472	1,654	1,488	(166)	-10.04%
	Post Secondary	1,132	1,086	2,215	3,316	3,519	203	6.12%
	<b>TOTAL</b>	<b>2,348</b>	<b>2,455</b>	<b>3,687</b>	<b>4,970</b>	<b>5,007</b>	<b>37</b>	<b>0.74%</b>
UCAT TOTALS (2)	Secondary	11,465	11,169	11,361	11,663	11,801	138	1.18%
	Post Secondary	23,001	22,584	25,245	25,490	29,762	4,272	16.76%
	<b>TOTAL</b>	<b>34,466</b>	<b>33,753</b>	<b>36,606</b>	<b>37,153</b>	<b>41,563</b>	<b>4,410</b>	<b>11.87%</b>

## Notes

- (1) Previously reported FY04 through FY07 amounts have been restated to remove self support headcount.
- (2) UCAT totals for FY04 through FY07 have been restated to remove amounts previously reported for SEATC (now CEU).



# UTAH COLLEGE OF APPLIED TECHNOLOGY

## MEMBERSHIP HOUR HISTORY

2004 - 2008

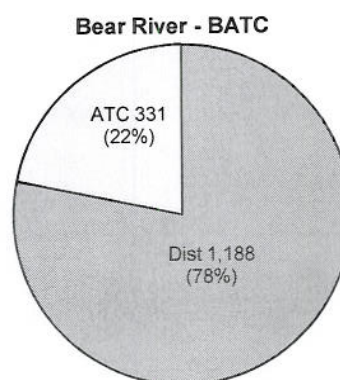
		FY 04	FY 05	FY 06	FY 07	FY 08 (See Note A)	FY 07 to 08 Growth (Membership Hours)	FY 07 to 08 Growth (Percent)
BATC	Secondary	288,381	274,445	297,415	306,072	328,019	21,947	7.17%
	Post Secondary	710,081	706,324	711,941	671,034	690,113	19,079	2.84%
	<b>TOTAL</b>	<b>998,462</b>	<b>980,769</b>	<b>1,009,356</b>	<b>977,106</b>	<b>1,018,132</b>	<b>41,026</b>	<b>4.20%</b>
DATC	Secondary	414,985	311,324	328,768	328,789	285,846	(42,943)	-13.06%
	Post Secondary	751,509	804,252	813,776	797,062	812,335	15,273	1.92%
	<b>TOTAL</b>	<b>1,166,494</b>	<b>1,115,576</b>	<b>1,142,544</b>	<b>1,125,851</b>	<b>1,098,181</b>	<b>(27,670)</b>	<b>-2.46%</b>
DXATC	Secondary	85,253	107,175	95,024	94,708	97,481	2,773	2.93%
	Post Secondary	39,625	36,016	85,535	99,592	106,560	6,968	7.00%
	<b>TOTAL</b>	<b>124,878</b>	<b>143,190</b>	<b>180,559</b>	<b>194,300</b>	<b>204,041</b>	<b>9,741</b>	<b>5.01%</b>
MATC	Secondary	390,225	399,936	413,192	433,843	472,994	39,151	9.02%
	Post Secondary	78,916	143,467	190,448	255,850	317,838	61,988	24.23%
	<b>TOTAL</b>	<b>469,141</b>	<b>543,403</b>	<b>603,640</b>	<b>689,693</b>	<b>790,832</b>	<b>101,139</b>	<b>14.66%</b>
OWATC	Secondary	274,214	305,378	323,162	326,664	309,079	(17,585)	-5.38%
	Post Secondary	912,311	910,275	869,314	831,461	886,595	55,134	6.63%
	<b>TOTAL</b>	<b>1,186,525</b>	<b>1,215,653</b>	<b>1,192,476</b>	<b>1,158,125</b>	<b>1,195,674</b>	<b>37,548</b>	<b>3.24%</b>
SLTATC	Secondary	52,550	50,223	45,997	31,762	42,404	10,642	33.50%
	Post Secondary	166,610	152,705	209,905	219,604	223,469	3,865	1.76%
	<b>TOTAL</b>	<b>219,160</b>	<b>202,927</b>	<b>255,902</b>	<b>251,366</b>	<b>265,873</b>	<b>14,507</b>	<b>5.77%</b>
SWATC	Secondary	107,028	117,548	129,896	146,743	123,498	(23,245)	-15.84%
	Post Secondary	104,428	117,976	120,184	122,301	210,600	88,299	72.20%
	<b>TOTAL</b>	<b>211,456</b>	<b>235,523</b>	<b>250,080</b>	<b>269,044</b>	<b>334,098</b>	<b>65,054</b>	<b>24.18%</b>
UBATC	Secondary	216,576	246,270	264,623	280,002	260,249	(19,753)	-7.05%
	Post Secondary	227,149	231,248	254,180	247,717	250,412	2,695	1.09%
	<b>TOTAL</b>	<b>443,725</b>	<b>477,518</b>	<b>518,803</b>	<b>527,719</b>	<b>510,661</b>	<b>(17,058)</b>	<b>-3.23%</b>
UCAT TOTALS (See Note B)	Secondary	1,829,212	1,812,298	1,898,077	1,948,583	1,919,570	(29,014)	-1.49%
	Post Secondary	2,990,629	3,102,262	3,255,283	3,244,621	3,497,922	253,301	7.81%
	<b>TOTAL</b>	<b>4,819,840</b>	<b>4,914,560</b>	<b>5,153,360</b>	<b>5,193,204</b>	<b>5,417,492</b>	<b>224,287</b>	<b>4.32%</b>

### NOTES:

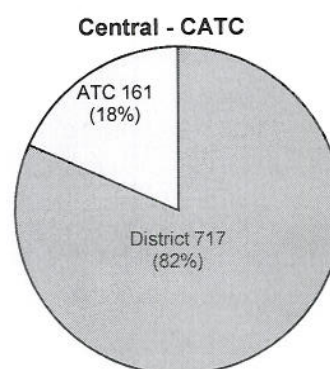
- A** Includes 166,149 hours counted outside the UCAT Membership Hours Policy. 161,056 hours were remedied through tuition offsets.
- B** UCAT Totals for FY2004 thru FY2007 restated removing the previously reported SEATC amounts

# CTE 9-12 Average Daily Membership (ADM) by Region - FY 2008

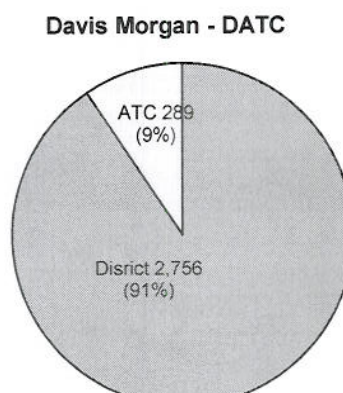
REGION	DISTRICT	Dist	ATC
BEAR RIVER / BATC	BOX ELDER	453	
	CACHE	573	
	RICH	18	
	LOGAN	136	
	Inrtch Charter	8	
TOTAL REGION		1,188	331
			22%



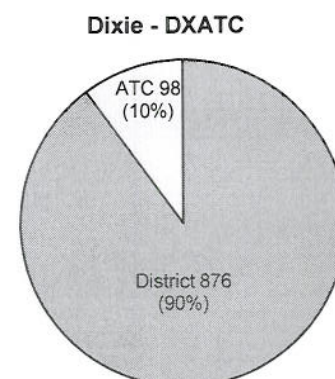
CENTRAL - Snow Richfield	JUAB	72	
	MILLARD	174	
	N SANPETE	123	
	PIUTE	14	
	SEVIER	188	
	S SANPETE	99	
	TINTIC	12	
	WAYNE	35	
TOTAL REGION		717	161
			18%



DAVIS/MORGAN - DATC	DAVIS	2,673	
	MORGAN	83	
	NUAMES Charter	41	
TOTAL REGION		2,756	289
			9%



DIXIE - DXATC	WASHINGTON	876	
TOTAL REGION		876	98
			10%

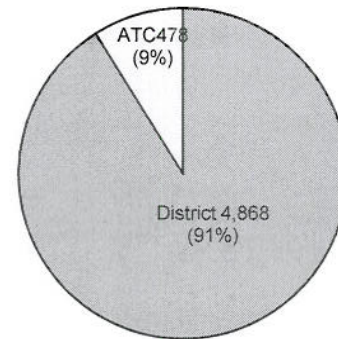




# CTE 9-12 Average Daily Membership (ADM) by Region - FY 2008

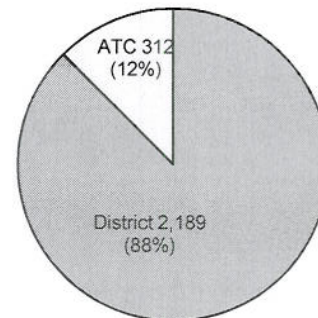
REGION	DISTRICT	Dist	ATC
MOUNTAINLAND - MATC	ALPINE	2,460	
	NEBO	1,150	
	N SUMMIT	41	
	PARK CITY	68	
	S SUMMIT	63	
	WASATCH	210	
	PROVO	862	
	UCAS Charter	9	
	ALA Charter	5	
TOTAL REGION		4,868	478 9%

Mountainland - MATC



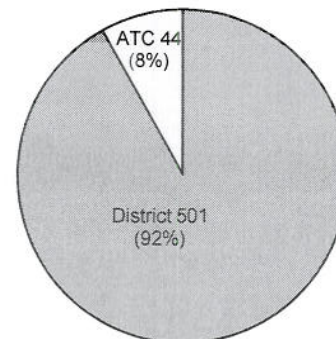
OGDEN/WEBER - OWATC	WEBER	1,750	
	OGDEN	439	
TOTAL REGION		2,189	312 12%

Ogden Weber - OWATC



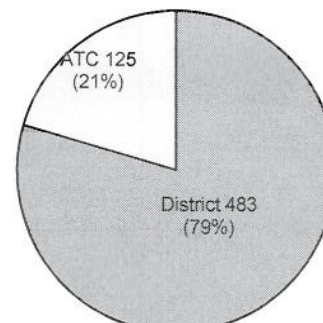
SOUTHEAST - CEU Non-Credit	CARBON	169	
	EMERY	80	
	GRAND	70	
	SAN JUAN	182	
TOTAL REGION		501	44 8%

Southeast - SEATC



SOUTHWEST - SWATC	BEAVER	76	
	GARFIELD	70	
	IRON	271	
	KANE	66	
TOTAL REGION		483	125 21%

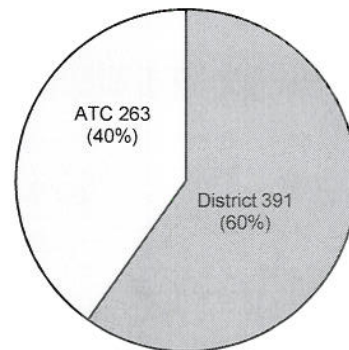
Southwest - SWATC



### CTE 9-12 Average Daily Membership (ADM) by Region - FY 2008

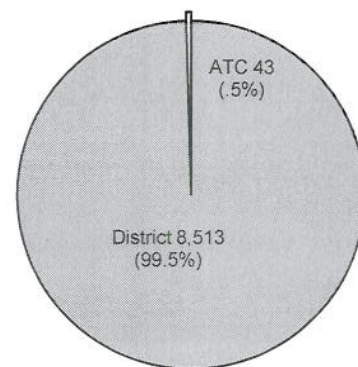
REGION	DISTRICT	Dist	ATC
UINTAH BASIN - UBATC	DAGGETT	8	
	DUCHESNE	153	
	UINTAH	230	
TOTAL REGION		391	263
			40%

## Uintah Basin - UBATC



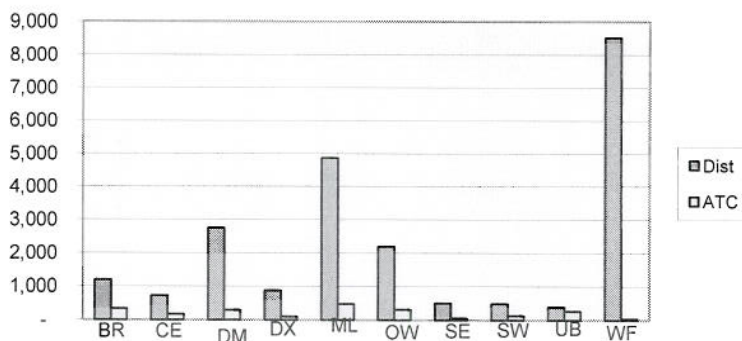
WASATCH FRONT - SLTATC	GRANITE	2,739	
	JORDAN	3,661	
	TOOELE	671	
	SALT LAKE	1,007	
	MURRAY	389	
	Itineris Charter	36	
	East Holloywood Chart	8	
	Paradigm Charter	2	
TOTAL REGION		8,513	43
			0.5006%

## Salt Lake-Tooele

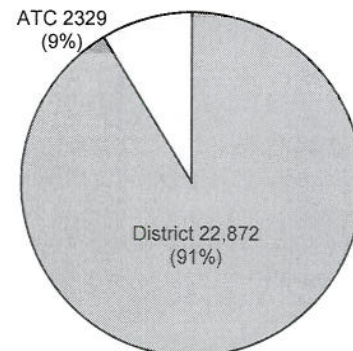


STATE TOTAL	22,503	2,144 9%
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### Statewide Comparison by Region



State Total



Note: ATC membership includes both the courses provided at college campuses and ATC courses provided at the high schools  
Central and Southeast Regions membership for students attending Snow College and CEU reported by Snow College and CEU  
ADM is full-time equivalent based on 990 hours





**Utah State Office of Education Survey and Results 2008**  
**How the Career and Technical Education Needs Are Being Met Through UCAT**

Please indicate the choice that best describes your region and/or district. Each question must be answered. Comments or explanations may be included at the end.

Name: \_\_\_\_\_ District: \_\_\_\_\_

1. Indicate the level of service UCAT provides to your district.	2004	2005	2006	2007	2008
a. Same as last year	58.1%	70%	53.8%	52.9%	54.3%
b. Increasing	38.7%	25%	30.8%	29.4%	28.6%
c. Decreasing	3.2%	2%	15.4%	17.7%	17.1%

2. To what extent are UCAT services available to students in your districts?	2004	2005	2006	2007	2008
a. Very available, full range of courses and programs available to students	29%	37.5%	28.2%	41.2%	40.0%
b. Somewhat available	58.1%	45%	41%	32.4%	34.3%
c. Somewhat limited	6.5%	17.5%	25.6%	23.4%	22.9%
d. Very limited or not available at all	6.5%	0%	5.1%	2.9%	2.9%

3. How do UCAT services affect CTE in your district?	2004	2005	2006	2007	2008
a. UCAT services add value by offering next step programs that allow students to move smoothly from high school CTE courses to more advanced or technical courses at UCAT	22.6%	42.5%	25.6%	32.4%	31.4%
b. UCAT supplements existing high school CTE programs in a positive way	77.4%	57.5%	66.7%	58.8%	60.0%
c. UCAT detracts from existing high school CTE programs, negative impact	0%	0%	5.1%	2.9%	2.9%
d. UCAT interferes, duplicates, or conflicts with CTE programs offered at the high school, produces a very negative impact	0%	0%	2.6%	5.9%	5.7%

4. How important are the UCAT AAT Degrees for students in your district?	2004	2005	2006	2007	2008
a. Very important, many students will be pursuing these degrees	19.4%	7.5%	10.3%	26.5%	25.7%
b. Somewhat important	38.7%	27.5%	38.5%	32.4%	31.4%
c. Somewhat unimportant	16.1%	20%	17.9%	23.5%	22.9%
d. Not important at all; very few, if any students or parents are interested in an AAT or BAT degree through UCAT.	25.8%	45%	33.3%	17.7%	20.0%

5. To what extent has your region worked on articulation between the school districts and UCAT on the AAT degrees and the UCAT program certificates, or other UCAT offerings?	2004	2005	2006	2007	2008
Considerable	54.8%	40%	38.5%	47.1%	45.7%
Some	22.6%	25%	56.4%	29.4%	31.4%
Very Little	19.4%	20%	5.1%	23.5%	22.9%
None	3.2%	15%	0.0%	0.0%	0.0%



6. What level of accountability is UCAT willing to accept for student performance?	2004	2005	2006	2007	2008
a. Very accountable. State skill certification tests given to all students, course completion results recorded for each student. Results shared with district.	38.7%	50%	28.2%	26.5%	28.6%
b. Somewhat accountable. Some state skills tests given and some reports sent to district.	41.9%	40%	59%	58.8%	57.1%
c. Somewhat unaccountable. Few skills tests given, and few reports sent to the districts.	19.4%	10%	12.8%	5.9%	5.7%
d. Not accountable. State skill tests ignored, no performance results shared with district.	0.0%	0.0%	0.0%	8.8%	8.6%

7. Has your region worked on articulation of the high school CTE skill certificate?	2004	2005	2006	2007	2008
Considerable	29%	50%	36.8%	54.6%	55.9%
Some	48.4%	30%	50%	36.4%	35.3%
Very Little	16.1%	17.5%	10.5%	6.2%	5.9%
None	6.5%	2.5%	1%	3.0%	2.9%

8. How is your working relationship with UCAT in your region?	2004	2005	2006	2007	2008
a. Excellent working relationship, communication and marketing coordinated through CTE Director, UCAT programs articulated with district programs, resources are shared to benefit students.	71%	82.5%	74.4%	73.5%	74.3%
b. Fair working relationship, students can benefit if they happen to know about UCAT programs and how to get it on their schedule.	25.8%	17.5%	23.1%	20.6%	20.0%
c. Poor working relationship, lack of communication or coordination often leads to confusion, duplication, or competing activities.	3.2%	0.0%	0.0%	5.9%	5.7%
d. Unacceptable, no working relationship, little or misleading communication, direct contact with High School principals, counselors, or students about UCAT programs with little or no coordination with CTE Director.	0.0%	0.0%	1%	0.0%	0.0%

9. How well does the UCAT Board represent the interests of school districts?	2004	2005	2006	2007	2008
a. Very well, local board members are active participants and CTE Director attends meetings.	44.8%	47.5%	57.9%	44.1%	42.9%
b. Fairly well, local board members or CTE Director attend most of the time.	34.5%	37.5%	34.2%	41.2%	42.9%
c. Not too well, neither local board members or CTE Director attend	17.2%	12.5%	7.9%	14.7%	14.3%
d. Not at all. Local board member not involved or does not have opportunities to participate in decision making. CTE Director isn't invited, or is not give opportunity to participate.	3.4%	2.5%	0.0%	0.0%	0.0%

10. How significant is UCAT as a partner in planning articulating, and coordinating efforts in your region?	2004	2005	2006	2007	2008
a. Very significant, UCAT is a critical link and major contributor to the level of CTE services in our region.	51.6%	70%	59%	55.9%	54.3%
b. Somewhat significant, UCAT participates in some partnerships.	38.7%	27.5%	35.9%	29.4%	31.4%
c. Somewhat insignificant, UCAT participates in some partnerships.	9.7%	2.5%	2.6%	14.7%	14.3%
d. Not significant at all UCAT doesn't participate, competes or detracts from partnerships.	0.0%	0.0%	2.6%	0.0%	0.0%



# Accounting & Finance

## BUSINESS EDUCATION



### High School to College and Career Pathway: Secondary

Area of Study: Business Education

#### Pathway: Accounting & Finance

Middle School			High School Suggested Education Plan				College & Careers
7 <sup>th</sup> Grade	8 <sup>th</sup> Grade	State Requirements	9 <sup>th</sup> Grade Suggested	10 <sup>th</sup> Grade Suggested	11 <sup>th</sup> Grade Suggested	12 <sup>th</sup> Grade Suggested	
Language Arts 7 1.00 Pre-Algebra 1.00 Science .50 Utah Studies .50 P.E. 1.00 The Arts .50	Language Arts 8 1.00 Elm. Algebra or Applied Math 1.00 Science 1.00 U.S. History I 1.00 Health .50 The Arts .50	Middle School Language Arts 2.00 Math 2.00 Science 1.50 Social Studies 1.50 P.E./Health 1.50 Fine Arts 1.00 Financial Literacy Computer Tech. .50 Career and Technical Education 1.00	Language Arts 9 1.00 Geometry or Applied Math II 1.00 Earth Systems 1.00 World Civilizations .50 Participation Skills and Techniques .50	Language Arts 10 1.00 Intermediate Algebra 1.00 Biological Science 1.00 Geography for Life .50 Fitness for Life, 50 / Health Education .50 Fine Arts Courses 1.50 Computer Technology .50	Language Arts 11 1.00 (1 additional credit -- class of 2011) (1 additional credit -- class of 2011) U.S. History II 1.00 U.S. Government and Citizenship .50	(1 additional credit -- class of 2011) 1.00 credits 2.00 credits 3.00 credits for completion	<b>Beyond High School</b> There are a number of options for education and training beyond high school, depending on your career goals. > Certificate > Associate degree > Bachelor degree > Professional degree > On-the-job training > Apprenticeship > Military training  <b>Sample Occupations</b> > Accountant > Accounting Clerk > Auditor > Bookkeeper > Tax Examiner > Tax Preparer  For more information on salary projections, labor market demand, and training options, visit <a href="http://www.careers.utah.gov">www.careers.utah.gov</a>
CTE Intro 1.00							
<b>Workforce Trends</b> Accountants, those with a CPA, continue to be in demand in both public and private industry audit and tax specialties. Demand is especially high in the tax and health care areas. Accountants who have a lot of special skills, such as certified public accountants (CPAs) and certified management accountants, should have the easiest time finding a job.			<b>Career and Technical Education Recommended Pathway Courses</b> (Students may select individual courses for exploration, or complete pathway for an in-depth focus.) <b>CLASS AVAILABILITY MAY VARY AT YOUR HIGH SCHOOL</b>				
		Core Curriculum and elective requirements may vary district to district. Check with your school counselor. Concurrent enrollment course offerings vary by school and district.  Many Utah post-secondary programs accept high school courses toward a two- or four-year degree through concurrent enrollment. Check regional post-secondary Pathways for details.	Course # 32.0417 Computer Technology .50 32.0461 Word Processing Basics/Keyboarding .50 32.0312 Accounting I .50 32.0322 Accounting II .50 32.0332 Accounting III .50 32.0342 Accounting IV .50 32.0813 Banking & Finance .50 32.0511 Business Communications I .50 32.0521 Business Communications II .50 32.0441 Business Law .50 32.0211 Business Management .50 32.0311 Business Math .50 32.0811 Economics .50 32.0419 Electronic Spreadsheets & Databases .50 32.0621 Entrepreneurship .50 32.0708 Marketing .50 32.0199 Student Internship .25				

005201

Utah High School to College and Career Pathways





# High School to College and Career – Post Secondary

**Area of Study:** Business Education    **Pathway:** Accounting & Finance    **National Career Cluster:** Finance

**Region:** Mountainland    **College / Institution:** Utah Valley State College  
**District(s):** Alpine, Provo, Nebo, Wasatch, N Summit, S Summit, Park City  
**School :** Regional Agreement    **Articulation Agreement in place?** ☒ Yes    ☐ No  
**Contact person:** Lisa Birch    **Ph.#:** 801-492-2900    **e-mail:** [lisa.birch@mountainlandatc.org](mailto:lisa.birch@mountainlandatc.org)    **Name of Degree or Certificate:** AAS in Accounting (64 Credits Required)

High School		College			College General Education Requirements		Credits
Course #	High School Suggested Courses	H.S. Credit	College Credits	Course #			
ENGL	ENGLISH		3→	ENGL	ENGLISH		3
ENGL1010	College Writing * **	1		ENGL 1010	Introduction to Writing		
MATH	MATHEMATICS		3→	MATH	MATHEMATICS		3
52.0311	Business Math	.50		ACC1150	Fundamentals of Business Math		
				MGMT2200	Business Communications		3
	SOCIAL/BEHAVIORAL/POLITICAL SCIENCE Complete one course from the following:		3→		SOCIAL/BEHAVIORAL/POLITICAL SCIENCE Complete one course from the following:		3
				MGMT3000	Organizational Behavior (recommended)		
GEOG1300	Survey of World Geography **	1		GEOG1300	Survey of World Geography		
HIST1100	History of Civilization *	1		HIST1100	History of Civilization I		
HIST1700	AP US History *	1		HIST1700	American Civilization		
52.0211	Business Management *	.5		MGMT1010	Introduction to Business		
MGMT2020	Macroeconomics **			MGMT2020	Macroeconomics		
POLS1100	American National Government **	1		POLS1100	American National Government		
PSY1010	AP Psychology * Gen. Psych. **	1		PSY1010	General Psychology		
SOC1010	Sociology * Intro to Sociology **	1		SOC1010	Introduction to Sociology		
				→	Any other approved Social/Behavioral Science distribution course		
	BIOLOGY/PHYSICAL SCIENCE Complete one course from the following:		3→		BIOLOGY/PHYSICAL SCIENCE Complete one course from the following:		3
BIOL1010	AP Biology * Gen. Biology **	1		BIOL1010	General Biology		
GEO1010	Geology * Intro. To Geology **	1		GEO1010	Introduction to Geology		
PHYS1010	Physics Honors/Engr. I *	1		PHYS1010	Elementary Physics		
PHYS1040	Astronomy *	1		PHYS1040	Elementary Astronomy		
				→	Any other approved Biology/Physical Science distribution course		
	PHYSICAL ED./HEALTH/SAFETY OR ENVIRONMENT		1→		PHYSICAL ED./HEALTH/SAFETY OR ENVIRONMENT		1
HLTH1100	Personal Health & Wellness **			HLTH1100	Personal Health & Wellness		
					Any other approved Physical Ed./Health/Safety or Environment distribution course		
<b>High School Total (General Ed.) and Other Available Credits</b>			<b>13</b>	<b>College Total Credits</b>			<b>16</b>





Course CIP #	High School Career Pathway Courses (min. 3 Required)	H.S. Credit	College Credits	Course #	College Major Course Requirements	Credits
52.0511	Business Communications I	.50				
52.0521	Business Communications II	.50				
52.0311	Business Math (see above in General Education)	.50				
52.0417	Computer Technology *	.50	3→	AIM1050	Basic Computer Applications	3
52.0461	Word Processing Basics/Keyboarding					
	<b>Foundation Courses: (required)</b>					
52.0312	Accounting I	.50	3→	AIM1080	10-Key Data Entry	.5
52.0813	Banking & Finance	.50				
	<b>Elective Courses:</b>					
52.0322	Accounting II	.50				
52.0419	Electronic Spreadsheets & Databases	.50				
52.0441	Business Law	.50				
52.0211	Business Management	.50	3→	MGMT1010	Introduction to Business Management	3
52.0611	Economics	.50				
52.0621	Entrepreneurship	.50				
08.0708	Marketing	.50				
32.0199	Student Internship	.25				
				ACC2020	Managerial Accounting	3
				ACC2100	Payroll Accounting	3
				ACC2610	Accounting Systems Applications	3
				ACC3010	Intermediate Accounting I	3
				ACC3020	Intermediate Accounting II	3
				ACC3400	Individual Income Tax	3
				AIM2360	Business Spreadsheet Applications	3
				MGMT2250 or MGMT3890	Job Application and Advancement Skills or Career Preparation	1
				MGMT295R or MGMT495R	Executive Lecture Series	.5
	<b>Additional Articulated Classes Below</b>					
52.0332	Accounting III *	.50	3→	ACC2010	Financial Accounting	3
52.0342	Accounting IV *	.50				
→	<b>Elective Requirements</b> (complete any coursework from the following prefixes; ACC, AIM, BMED, C.J, HM, INFO, LEGL, MGMT)		16→	→	<b>Elective Requirements</b> (complete any coursework from the following prefixes; ACC, AIM, BMED, C.J, HM, INFO, LEGL, MGMT)	16
<b>TOTAL Potential (college) Credits Earned in High School</b>		<b>Total Pathway Credits</b>	<b>28→</b>	<b>TOTAL Credits Required for Major</b>		<b>48</b>
			<b>41→</b>			<b>64</b>

**Note:** This is a regional agreement. Some classes and some concurrent enrollment agreements may not be available in your particular high school. See your individual school for specific program offering. Also, District CIP codes may differ, contact your district for specific CTE class offerings.

**Note:** \* = concurrent \*\* = distant



# Meet an Automotive Student

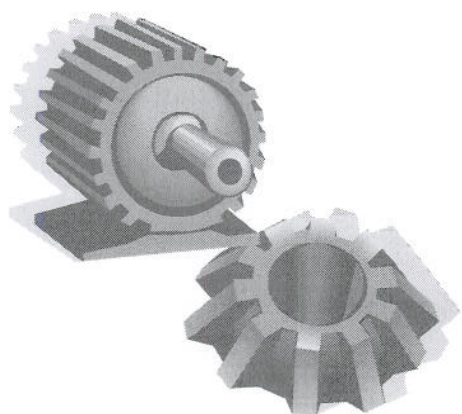
**Amelia Mitchell**, a graduate of Timpview High School, says her interest in the automotive industry began in high school when she was a class assistant to the auto teacher and found she liked talking to the guys in the class about off-roading and four-wheeling. "I picked up lots of knowledge by being around them and correcting tests," she said. It was then that Amelia decided to take a beginning automotive class during her senior year.

Amelia became involved in SkillsUSA, where in high school she was state president, and continued to be involved in SkillsUSA through college. In her senior year, Amelia entered an automotive competition, sponsored by Weber State University, and scored among the top three students in her high school winning a trip to Long Beach, California to attend the Grand Prix and tour the Toyota facility.



Photo by: Whitney Curtis, Standard-Examiner

Amelia then entered college to pursue a degree in automotive technology. She recently earned a bachelor's degree in automotive technology from Weber State University. As a result of her leadership, involvement, and success in SkillsUSA and her persistence in pursuing a career in a traditionally male-dominated field—along with her 3.83 grade point average—prior to graduation seven high-profile automotive companies vied to hire her, including General Motors Corporation, Ford Motor Company, Honda Motor Company, Toyota Motor Corporation, Sherwin-Williams Automotive Finishes Corporation, Harley-Davidson Motor Company, and Caterpillar. After serving a summer internship at Toyota and two internships with Caterpillar, Amelia accepted a position with Caterpillar beginning at \$53,000 per year as a marketing representative specializing in truck-engine service.



*"As a woman in a nontraditional field, you're always watched. Some people want you to succeed and some want you to fail."*

*-Amelia Mitchell*

By participating in Career and Technical Education, you too can get started in a career in the automotive industry through a Skilled and Technical Sciences Pathway.

For more information, talk to your school counselor or visit [www.utahcte.org](http://www.utahcte.org).





# Meet a Welding Student

**Erica McPherson**, a graduate of Delta High School, says her interest in welding began in her freshman year when she took an Agricultural Mechanics class to learn more about the aspects of welding for her family farm and cattle operation. "I was the only girl in the class, and half way through the year my teacher thought it would be entertaining to set up an in-class welding competition with me against the boys. The boys got to be the judges of the anonymous welds, and to their surprise, I won." The following year, Erica enrolled in the Advanced Welding Technician class, and she has "been obsessed with welding" ever since.



Some of Erica's projects include building a portable cattle loading chute, a pipe hauling trailer, a standing saddle rack, and many decorative items. "Because I work on my family farm and cattle operation, welding is an almost daily task. I recently helped weld and install the pipe for our newest pivot irrigation system." According to Erica, her dad has given her a new chore on the family farm—that of welding anything that is in need of repair.

Erica was chosen to represent Delta High School as the Trade and Technical Sterling Scholar (now known as the Skilled and Technical Sciences Sterling Scholar Award) in her region. She has been involved in SkillsUSA where she was the local chapter Public Relationist and Parliamentarian. She has competed in various welding competitions around the state, including the SkillsUSA Welding Competition. Erica was also selected to attend the SkillsUSA National Welding Competition, where she did very well.

When Erica graduated from Delta High School, she not only received her diploma, but also received an Associate of Science Degree from Utah State University. Erica plans to continue her education at Utah State University where she will major in Agricultural Education. She also plans on becoming a certified welding instructor.



*"The welding and agricultural classes [I took in high school] gave me the needed skills to be successful in my career and in all aspects of life."*

*-Erica McPherson*



By participating in Career and Technical Education, you too can get started in a career in manufacturing through a Skilled and Technical Sciences Pathway and build a skill for life.

For more information, talk to your school counselor or visit [www.utahcte.org](http://www.utahcte.org).





# CTE Student Testimonials

## Agricultural Education

"Agriculture and the FFA gave me a place to belong. As a freshman my teacher encouraged me to set goals which helped me to establish a direction for my life."

Tiffany Clegg  
North Summit High School

## Business Education

"After taking a Business Management class, I discovered what I want to study in college and what career I wanted to pursue. CTE helped me focus my energy and realize that Business Management is what I want to do for the rest of my life."

David Moshe Wright  
Riverton High School

"CTE taught me what I need to know to pursue a career in business."

Lindsey Coles  
Delta High School

## Family & Consumer Sciences Education

"I was able to earn college credit while in high school"

Nicole Faddis  
Alta High School

## Health Sciences and Technology Education

"The CTE classes I took helped prepare me for a life of responsibilities after high school. I learned how to work hard, set schedules, manage my time and money, and prioritize. These qualities will help me advance through college to a career I will enjoy."

Zach Lintz  
Copper Hills High School

"CTE gave me a head start in a medical career and gave me a medical assisting job while going to school."

Tristan Morris  
Alta High School

## Information Technology Education

The IT classes I took in high school prepared me for a college-level programming class."

Delian Asparouhova  
West High School

"CTE and IT taught me the highly structured and analytical ideas behind program language. The programming class further developed my sense of logistical reason. I can now see problems from a rigorous analytical point of view."

Erick Chen  
West High School

**Marketing Education**

"Through CTE I learned how to market creatively and how quality and customer service are very important to having a good business."

Natalie Tucker  
Alta High School

**Skilled and Technical Sciences Education**

"The welding and agricultural classes I took in high school gave the needed skills to be successful in my career and in all aspects of life."

Erica McPherson  
Delta High School

"As a woman in a nontraditional field, you're always watched. Some people want you to succeed and some want you to fail."

Amelia Mitchell  
Timpview High School

**Technology and Engineering Education**

"CTE classes gave me the advantage of knowledge and experience for my future career in engineering."

Alex Schmall  
Provo High School

"The CTE classes I took in high school were a stepping stone to climbing the ladder to success."

Clelia Rivera  
Ben Lomond High School





# **CTE PATHWAYS**

## **Connecting High School to College and Career**



UTAH STATE OFFICE OF EDUCATION  
250 East 500 South  
P.O. Box 144200  
Salt Lake City, UT 84114-4200

Patti Harrington, Ed.D., State Superintendent of Public Instruction  
Mary Shumway, State Director of Career and Technical Education



# Career and Technical Education Goals 2007-08 - USOE and Consortium

## GOAL 1: High School to College and Career Pathways

Objectives (USOE)	Consortium Identified Challenges 10/07	Consortium Objectives/Tasks 2007-08
<ul style="list-style-type: none"> <li>▶ Develop and implement secondary pathways</li> <li>▶ Develop post-secondary pathways</li> <li>▶ Strengthen region articulation and concurrent enrollment opportunities</li> <li>▶ Increase secondary to postsecondary transition</li> <li>▶ Increase awareness to expand implementation</li> </ul>	<p><u>Pathways Implementation</u></p> <ul style="list-style-type: none"> <li>• Refine</li> <li>• Communicate</li> <li>• Can we get additional funding?</li> <li>• Sequence of Courses</li> </ul> <p><u>Articulation with Post-Secondary</u></p> <p>ATC Credit - programs don't lead to degrees            ATC work does not "count" with credit            ATC is important part of pathways            ATC credit not transfer</p>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Consortium will work with the regional pathway coordinators and the state in providing input and executing the implementation plan and staff development strategies (?)</li> <li><input type="checkbox"/> Consortium will work with the Utah State Board of Regents on the role of UCAT and the issues of credit (?)</li> <li><input type="checkbox"/> Consortium will continue to monitor developments in the concurrent enrollment program to maintain current standards and level of service (?)</li> <li><input type="checkbox"/></li> <li><input type="checkbox"/></li> </ul>

## GOAL 2: Accountability

Objectives (USOE)	Consortium Identified Challenges 10/07	Consortium Objectives/Tasks 2007-08
<ul style="list-style-type: none"> <li>▶ Develop and implement state and local Perkins plans</li> <li>▶ Improve the quality of skill certification tests and expand on-line delivery</li> <li>▶ Utilize state program approval process to improve local programs</li> <li>▶ Utilize PATI to ensure proper allocation of funding and program approval.</li> <li>▶ Collect necessary data to meet accountability needs</li> <li>▶ Accountability of state and federal funds</li> </ul>		<ul style="list-style-type: none"> <li><input type="checkbox"/> Consortium will work to move more CTE Skills testing on-line as outlined in the RFP with Precision Exams</li> <li><input type="checkbox"/> Consortium will support the CTE Skills testing program utilizing the Skill Certificate sub-committee and the work of Renee Hyer</li> <li><input type="checkbox"/> A sub-committee of the consortium will review the CTE funding formulas (CTE HS WPU) outlined in State Board Rule (Marv's Committee) and make recommendations to the consortium</li> <li><input type="checkbox"/></li> <li><input type="checkbox"/></li> <li><input type="checkbox"/></li> </ul>

### Goal 3: Quality CTE Classroom Instruction

Objectives (USOE)	Consortium Identified Challenges 10/07	Consortium Objectives/Tasks 2007-08
<ul style="list-style-type: none"> <li>▶ Establish and revised standards and curriculum for career and technical education areas of study</li> <li>▶ Accountability</li> <li>▶ Provide quality staff development activities</li> <li>▶ Develop and implement high school to college and career pathways in each area of study</li> <li>▶ Work with industry, DWS data, and local school districts to maintain and initiate programs</li> <li>▶ Strengthen the Career and Technical Student Organizations (CTSOs)</li> <li>▶ Implement strategies that encourage non traditional participation in programs</li> <li>▶ Improve the CTE Intro course</li> </ul>	<p><b><u>Teacher Shortage</u></b>  Higher Ed Programs  Recruitment  ARL/CTE Routes  NCLB</p> <p><b><u>Remediation</u></b>  Position CTE to Assist  Crosswalk Academic Standards to CTE  Data – Show kids can benefit from CTE</p> <p><b><u>Keyboarding</u></b></p>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Through the CTSO sub-committee the consortium will do the following this year: <ul style="list-style-type: none"> <li>-</li> <li>-</li> <li>-</li> </ul> </li> <li><input type="checkbox"/> Develop a forum for sharing best practices for quality CTE programs among districts at state director's meetings.</li> <li><input type="checkbox"/> Review and provide feed back to the state specialists recommendations for CTE course changes.</li> <li><input type="checkbox"/> Provide input to the state CTE staff regarding summer conference staff development activities.</li> <li><input type="checkbox"/></li> <li><input type="checkbox"/></li> <li><input type="checkbox"/></li> <li><input type="checkbox"/></li> </ul>

## Goal 4: Collaboration, Marketing, and Awareness

Objectives (USOE)	Consortium Identified Challenges 10/07	Consortium Objectives/Tasks 2007-08
<ul style="list-style-type: none"> <li>▶ Establish and maintain partnerships</li> <li>▶ Work with CTE directors and CTE Consortium</li> <li>▶ Assess marketing and awareness needs</li> <li>▶ Collaborate with specialists to develop awareness materials for areas of study</li> <li>▶ Develop and implement training and awareness activities for the pathways initiative</li> <li>▶ Collaborate with pathway partners to develop and disseminate information appropriate for various audiences</li> <li>▶ Update CTE website</li> </ul>	<p><b><u>Legislature – Funding Etc.</u></b>  Match  Unfunded Mandates  Comp Guidance  WBL  Funding Formulas</p> <p><b><u>Technology- Keep Current</u></b>  Tap State Technology Money  Funding Issues  Set-a-side</p> <p><b><u>Financial Literacy and Computer Tech</u></b>  FTE Shifts  Hits CTE Higher Level Courses</p> <p><b><u>Equipment</u></b>  State Set-A-Side</p> <p><b><u>Increased Graduation Requirements</u></b>  Impact</p> <p><b><u>Awareness</u></b>  Legislature  Superintendents  School Boards  Business</p> <p><b><u>On-line Testing</u></b>  Impact on CTE Labs  Related to Technology Money Issues  Displacement of Students</p>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Work with superintendents, the state school board, local boards and the legislature to obtain \$9 million for comprehensive counseling and guidance programs</li> <li><input type="checkbox"/> Work with superintendents and testing directors on the impact of using CTE labs for UPASS testing</li> <li><input type="checkbox"/> Execute plans for to inform school boards and legislators about the Pathways initiative and CTE programs in general.</li> <li><input type="checkbox"/> Work with the state board and legislature to obtain increases in CTE, demonstrating costs of equipment, the impact of computer technology and financial literacy.</li> <li><input type="checkbox"/> Provide input to the state CTE staff regarding state director's meetings.</li> <li><input type="checkbox"/></li> <li><input type="checkbox"/></li> <li><input type="checkbox"/></li> </ul>

## Shumway, Mary

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**From:** Hyer, Renee  
**Sent:** Monday, October 20, 2008 5:11 PM  
**Subject:** Skill Certificate Testing Information - Budget and Audit  
**Attachments:** Skill Certificate Testing Plan and Budget 2009.pdf; TestRevisionPlan.pdf; Budget Update Oct 2008.pdf

### CTE Secondary Directors:

Due to time constraints, additional information needed and committee members' desire to gather regional input, an additional meeting was scheduled. Region committee members will address the budget and the audit procedure at the upcoming Skill Certificate Meeting on November 13, 2008.

Several state specialists proposed new CTE skill certificate tests at the September skill certificate committee meeting, so the approved budget plan will be reviewed as the request exceeds the approved budget. The procedure and purpose of the audit will also be reviewed.

Please provide your region member input/feedback before the November 13, 2008 meeting.

### BUDGET

1. The '09 Skill Certificate Budget was approved at the April 30, 2008 director's meeting. (Attachment – Skill Certificate Testing Plan and Budget 2009)
2. The budget included the review and revision of 65 current USOE developed skill certificate tests (50%). The two-year plan is to review and revise all the current tests, 50% this year (2008-09) and 50% next year. (Two attachments – Test Revision Plan and Budget Update October 2008)
3. CTE state specialists are responsible for course standards and those projects are not part of the skill certificate budget.
4. Course standards and objectives must be current before test revisions can be done.
5. CTE state specialists and directors recommend teachers to work on test revision teams.
6. Renee Hyer then provides over sight of the test review/revision/creation process. New tests as well as any tests that are revised will only be online.

### AUDIT

#### Action taken and Implemented for 2008-9

- Revised the performance documentation forms
- Teachers need to keep documentation for just one year
- Class rolls are no longer attached
- Specialists can compare testing data with PATI data matching courses and tests etc.

Discussion for the committee meeting:

What are the goals/purposes of the audit and what is the best way to accomplish those?

Thanks  
Renee

Renee Hyer



# Skill Certificate Test Revision Plan

## USOE Developed Tests

Test #	Course	Tested	Substantial 80 - 100%		2008-09	2009-10
Agricultural Education						
110	Agricultural Systems Technology I - Test	556	142	25.5%	\$1,500	
113	Agricultural Systems Technology II	173	123	71.1%	\$1,500	
120	Animal Science & Technology, Entry	1,106	733	66.3%	\$1,500	
123	Animal Science & Technology, Advanced	72	50	69.4%	\$1,500	
126	Equine Science & Technology - Year	152	68	44.7%		\$1,500
127	Equine Science & Technology - Semester A	258	87	33.7%		\$1,500
128	Equine Science & Technology - Semester B	26	18	69.2%		\$1,500
130	Floriculture & Greenhouse Management -	611	42	6.9%	\$1,500	
131	Floriculture & Greenhouse Management -	713	174	24.4%	\$1,500	
132	Floriculture & Greenhouse Management -	190	23	12.1%	\$1,500	
133	Nursery Operation & Landscape	183	60	32.8%	\$1,500	
140	Plant & Soil Science & Technology, Entry	120	56	46.7%		\$1,500
150	Agriculture Business And Management	82	39	47.6%		\$1,500
170	Natural Resource Management I - Test #170	272	124	45.6%	\$1,500	
173	Natural Resource Management II	42	11	26.2%		\$1,500
180	Agriculture Science And Technology I	252	68	27.0%	\$1,500	
183	Agricultural Science And Technology II	22	13	59.1%		\$1,500
185	Agricultural Science And Technology III	21	3	14.3%		\$1,500
Business Education						
210	Accounting I	2,323	1,257	54.1%	\$1,500	
212	Accounting II	722	243	33.7%	\$1,500	
215	Administrative Procedures	131	72	55.0%	\$1,500	
220	Business Communications I	926	500	54.0%		\$1,500
222	Business Communications II	470	290	61.7%		\$1,500
230	Business Management	1,258	351	27.9%		\$1,500
235	Banking And Finance	512	139	27.1%	\$1,500	
240	Business Law	1,330	553	41.6%		\$1,500
245	Computers In Business	651	406	62.4%	\$1,500	
248	Desktop Publishing	1,092	373	34.2%	\$1,500	
251	Computer Technology II	NEW				\$1,500
254	Business Web Page Design	3,185	1,576	49.5%	\$1,500	
256	Advanced Business Web Page Design	NEW				\$1,500
260	Word Processing Basics	4,018	1,314	32.7%	\$1,500	
262	Word Processing	976	530	54.3%	\$1,500	

Test #	Course	Tested	Substantial 80 - 100%		2008-09	2009-10
Computer Technology						
250	Computer Technology - Test #250	34,271	19,555	57.1%	\$1,500	
Family and Consumer Sciences Education						
310	Adult Roles	1,804	932	51.7%		\$1,500
317	Adult Roles & Financial Literacy A	4,337	1,901	43.8%		\$1,500
319	Adult Roles & Financial Literacy B	3,906	2,037	52.2%		\$1,500
320	Child Development	6,278	2,941	46.8%	\$1,500	
323	Child Care	764	451	59.0%	\$1,500	
325	Child Care A	773	415	53.7%	\$1,500	
328	Child Care B	562	452	80.4%	\$1,500	
330	Interior Design I	4,187	1,590	38.0%	\$1,500	
333	Interior Design II	842	299	35.5%		\$1,500
340	Food And Nutrition I - Test #340			Equated	\$1,500	
343	Food And Nutrition II	5,855	2,301	39.3%		\$1,500
345	Food Service/Culinary Arts	522	151	28.9%		\$1,500
350	Clothing I	5,857	2,495	42.6%		\$1,500
353	Clothing II	855	188	22.0%		\$1,500
355	Fashion Strategies	1,762	626	35.5%	\$1,500	
Marketing Education						
400	Marketing	799	299	37.4%	\$1,500	
401	Marketing A	996	398	40.0%	\$1,500	
402	Marketing B	629	171	27.2%	\$1,500	
403	Marketing Advanced	61	4	6.6%		\$1,500
404	Fashion Merchandising A	866	382	44.1%		\$1,500
405	Fashion Merchandising B	301	187	62.1%		\$1,500
406	Fashion Merchandising, Advanced - Test	51	31	60.8%		\$1,500
407	Retailing	95	33	34.7%	\$1,500	
408	Retailing (School Store)	459	65	14.2%	\$1,500	
409	Advertising	283	27	9.5%	\$1,500	
410	Travel And Tourism	494	163	33.0%		\$1,500
411	Real Estate	203	107	52.7%		\$1,500
416	Sports & Entertainment Marketing A	1,483	649	43.8%	\$1,500	
417	Sports & Entertainment Marketing Applied	307	69	22.5%	\$1,500	
418	Leadership Principles	580	137	23.6%		\$1,500
419	Leadership Management A - Test #419	58	29	50.0%		\$1,500
420	Leadership Management B - Test #420	48	19	39.6%		\$1,500
421	Promotion	27	0	0.0%	\$1,500	
450	Economics - Test #450	744	290	39.0%		\$1,500

Test #	Course	Tested	Substantial 80 - 100%		2008-09	2009-10
451	Entrepreneurship	994	254	25.6%		\$1,500
Skilled and Technical Sciences Education						
500	Automotive Collision Repair	339	87	25.7%		\$1,500
505	Introduction To Automotive Service			Equated	\$1,500	
510	Construction Trades Foundation	192	42	21.9%		\$1,500
512	Carpentry	344	38	11.0%		\$1,500
520	Woodworking	4,609	1,759	38.2%	\$1,500	
522	Furniture Design & Manufacturing	1,097	380	34.6%	\$1,500	
524	Cabinetmaking	629	143	22.7%	\$1,500	
530	Basic Commercial Arts	2,087	730	35.0%	\$1,500	
535	Basic Commercial Photography	4,092	1,572	38.4%	\$1,500	
537	Digital Photography	3,191	908	28.5%	\$1,500	
540	Design & Drafting Tech	2,116	689	32.6%	\$1,500	
542	CAD Drafting	1,674	547	32.7%	\$1,500	
544	Architectural Drafting	741	107	14.4%		\$1,500
546	Mechanical Drafting	112	15	13.4%		\$1,500
550	Electronics I	792	265	33.5%		\$1,500
560	Introduction To Graphics Communication	2,130	1,050	49.3%	\$1,500	
562	Intermediate Graphic Communication	463	180	38.9%	\$1,500	
564	Advanced Graphic Communications	143	74	51.7%		\$1,500
567	Digital File Prep (Indesign)	257	53	20.6%		\$1,500
569	Digital File Prep (Quarkxpress)	24	12	50.0%		\$1,500
570	Law Enforcement	2,595	907	35.0%		\$1,500
580	Machine Tool -- Drill Press	84	21	25.0%		\$1,500
582	Machine Tool -- Lathe	66	12	18.2%		\$1,500
584	Machine Tool -- Mill	30	8	26.7%		\$1,500
590	Television Broadcasting	1,923	777	40.4%	\$1,500	
595	Welding			Equated	\$1,500	
597	Welding, Advanced	649	507	78.1%	\$1,500	
Technology and Engineering Education						
610	Foundations Of Technology	2,479	572	23.1%	\$1,500	
620	Introduction to Manufacturing	NEW				\$1,500
Health Science and Technolgy Education						
700	Introduction to Health Sciences	NEW				\$1,500
701	Exercise Science/Sports Medicine	1,779	692	38.9%	\$1,500	
702	Medical Anatomy & Physiology			Equated		\$1,500
704	Medical Terminology	2,499	1,313	52.5%		\$1,500
708	Biotechnology	544	163	30.0%	\$1,500	



Test #	Course	Tested	Substantial 80 - 100%		2008-09	2009-10
710	Medical Assistant: Medical Terminology	317	213	67.2%	\$1,500	
712	Medical Assistant: Medical Office	191	114	59.7%	\$1,500	
714	Medical Assisting: Anatomy & Physiology	197	102	51.8%	\$1,500	
716	Medical Assistant: Clinical & Lab Procedures	179	124	69.3%	\$1,500	
720	Dental Assistant: Dental Science I	311	51	16.4%		\$1,500
721	Dental Assistant: Dental Science II	230	16	7.0%		\$1,500
722	Dental Assistant: Dental Science III	206	18	8.7%		\$1,500
723	Dental Assistant: Dental Science IV	37	34	91.9%		\$1,500
Information Technology Education						
801	Introduction to Information Technology	328	133	40.5%		\$1,500
810	Multimedia I	2,239	637	28.5%	\$1,500	
815	Multimedia II	366	81	22.1%		\$1,500
818	3D Graphics	Split - old 818			\$1,500	
819	3D Animation	Split - old 818			\$1,500	
820	Computer Programming IA	914	442	48.4%		\$1,500
822	Computer Programming IB C++	97	31	32.0%		\$1,000
824	Computer Programming IB Java	265	124	46.8%		\$500
826	Computer Programming IB Visual Basic	111	29	26.1%		\$500
830	Computer Programming II - C++	18	11	61.1%		\$1,000
835	Computer Programming II - Java	80	40	50.0%		\$500
884	Computer Maintenance and Repair (A+)	370	172	46.5%	\$1,500	
888	Network Fundamentals	107	54	50.5%		\$1,500
890	Linux Fundamentals - Test #890	43	0	0.0%	\$1,500	
893	IT Web Development	334	175	52.4%	\$1,500	
	Sub-Total				\$94,500	\$90,500
PROPOSED NEW TESTS						
Industry and USOE Developed Tests						
Agricultural Education						
	Agricultural Communications and Leadership					
	Veterinary Assistant					
	Veterinary Technician					
Business Education						
	Desktop Publishing II				\$3,000	
Skilled and Technical Sciences Education						
	Television Broadcasting 1					
	Television Broadcasting 2				\$3,000	
	Television Production 1				\$3,000	

Test #	Course	Tested	Substantial 80 - 100%	2008-09	2009-10
	Television Production 2			\$3,000	
	Radio Broadcasting Technician 1			\$3,000	
	Radio Broadcasting Technician 2			\$3,000	
	Barbering, (11-12)				
	Basic Esthetician & Skin Care, (11-12)				
	Nail Technician, (11-12)				
	Basic Electronics, (10-12)				
	Advanced Electronics, (11-12)			\$3,000	
	Digital Electronics, (11-12)			\$3,000	
	Collision Non-Structural and Structural Repair, (10-12)			\$3,000	
	Collision Refinishing and Painting (11-12)			\$3,000	
	ASE General Service Technician, (10-12)				
	Design and Visual Communications, (10-12)			\$3,000	
	Commercial and Advertising Art, (10-12)			\$3,000	
	Industrial Design, (11-12)			\$3,000	
	Basic Film Photography, (10-12)				
	Basic Digital Photography, (10-12)				
	Advanced Commercial Photography, (11-12)			\$3,000	
	Criminal Justice (Request from Wasatch Front South)			\$3,000	
<b>Information Technology Education</b>					
	Interactive Media 1A ( will replace 810)				
	Interactive Media 1B			\$3,000	
	IT Web Development A (will replace 893)				
	IT Web Development B			\$3,000	
	Database Fundamentals			\$3,000	
	Adobe Certified Associate — Rich Media Communication using Flash CS3				
	Adobe Certified Associate — Visual Communication using Photoshop CS3				
	Adobe Certified Associate — Web Communication using Dreamweaver				
	SUSE Linux Enterprise Desktop 10 Administration -- Test #050-708				
	SUSE Linux Enterprise Server 10 Fundamentals -- Test #050-710				
			<b>Sub-Total</b>	<b>\$54,000</b>	
			<b>Total</b>	<b>\$148,500</b>	<b>\$90,500</b>

## 2008-09 Proposed Skill Certificate Testing Budget Plan

<b><u>INCOME</u></b>	
District and Charter School Participation (Billed October 2008)	\$200,000
State Funding (July 2008)	\$400,000
<b>Total Income</b>	<b>\$600,000</b>
<b><u>EXPENSES</u></b>	
1) <b>Online Contract - Year 3 of 4</b> (Delivery of 80,000 tests)	\$89,750
2) <b>Delivery of 80,000 additional online tests</b> (\$1/test)	\$80,000
3) <b>USOE Test Administration</b> (Paper testing, certificates, scanner etc.)	\$50,000
4) <b>Psychometric Support and Consulting</b> <ul style="list-style-type: none"> <li>Determine a policy for accommodation for paper tests for the 2008-09 year</li> <li>Create and implement complete exam policies</li> <li>Equate the four enhanced tests with the paper tests for funding in August, 2008</li> </ul>	\$25,000
5) <b>Teacher Test Team Leader Training</b> <ul style="list-style-type: none"> <li>Select Subject Matter Experts as Test Team Leaders (approximately 75)</li> <li>Provide 1 ½ days of training. (Offered June-July 2008)</li> </ul>	\$50,000
6) <b>Test Analysis, Item Development and Test Revisions</b> <ul style="list-style-type: none"> <li>A. Add 14 remaining paper-only tests to the Online System (all tests available online)</li> <li>B. Add 4 NEW tests to the Online System (November 1, 2008) <ul style="list-style-type: none"> <li>Computer Technology II</li> <li>Advanced Web Page Design</li> <li>Introduction to Manufacturing</li> <li>Introduction to Health Sciences</li> </ul> </li> <li>C. Revise 11 tests (November 1, 2008) <ul style="list-style-type: none"> <li>Business Law, Business Communication I, Business Communication II</li> <li>Adult Roles, Adults Roles and Financial Literacy A, Adults Roles and Financial Literacy B, Fashion Strategies</li> <li>Fashion Merchandising A, Fashion Merchandising B, Fashion Merchandising Advanced, Leadership Principles</li> <li>Medical Terminology</li> <li>3D Graphics, 3D Animation</li> </ul> </li> <li>D. Prioritize and run test analysis reports (50% this year) <ul style="list-style-type: none"> <li>Post Beta Item Selection and Blueprint Matching</li> <li>Time Selection Matrix</li> <li>Maximum Exam Time Analysis and Adjustment</li> <li>Passing Standard Methods and Interpretation</li> </ul> </li> <li>E. Revise high priority tests items for implementation (November 2009)</li> <li>F. As resources permit address test items in the next priority grouping</li> </ul>	\$260,250
7) <b>Programming</b> <ul style="list-style-type: none"> <li>Provide access and student data upload ability at that district level</li> <li>Create and generate new reports options</li> <li>Map 10,000 online test bank items to the objective level</li> <li>Validate the test blue prints at the objective level (currently at the standard level)</li> </ul>	\$45,000
<b>Total Expenses</b>	<b>\$600,000</b>

### 2008-09 ALL CTE SKILL CERTIFICATE TESTS SHOULD BE TAKEN ONLINE

**2008-09 Proposed Exception:** Current paper tests may be used when computer access is unavailable. (approximately 85) New, revised or enhanced tests will be available ONLY online. (approximately 46)



CTE Skill Certificate Program Budget				
	May-08		Oct-08	
	Original Budget		Revised Budget	
Year 3 Online Contract (80,000 tests)	\$89,750		\$89,750	
<b>Contract</b>		\$89,750		\$89,750
Delivery of additional 90,000 tests	\$80,000		<b>\$90,000</b>	
Exam Policy, Test Analysis, Teacher Training, Equalivant forms	\$156,000		\$156,000	
Enhanced Exams - (60 exams)	\$36,000		\$36,000	
Psychometric Support and Consulting	\$25,000		\$25,000	
Programming, Technical Support, Hosting	\$35,000		\$35,000	
<b>Contract</b>		\$332,000		\$342,000
<b>Sub-Total</b>		\$421,750		\$431,750
Teacher Team Leader Training	\$34,000		\$34,000	
Administration, Paper Tests, additional online	<b>\$50,000</b>		<b>\$15,000</b>	
Test Revisions	<b>\$94,250</b>		<b>\$99,250</b>	
Reserve for Possible Reduction in State Funds			<b>\$20,000</b>	
<b>Sub-Total</b>		\$178,250		\$168,250
<b>Total</b>		<b>\$600,000</b>		<b>\$600,000</b>

Estimated total for all test revsions and new tests  
Current Budget

**\$148,500**  
**\$99,250**  
**-\$49,250**

## CTE Directors:

During the recent PATI program approval process state CTE Specialists paid particular attention to skill certificate testing. This review of CTE testing raised some questions for the specialists about the administration of appropriate tests and who was being tested. The review also raised questions by CTE Directors and teachers about testing requirements and expectations. Recently, State CTE Directors approved recommendations by The Utah Skill Certificate Committee to allow students in special circumstances to take the same skill test more than once (see #5 and #6). The following clarifying statements should provide guidance and answers to these questions.

1. The USOE expects that the appropriate state developed CTE skill test is administered for all CTE courses that have a corresponding test. Students should be strongly encouraged to test for industry sponsored certification where appropriate.
2. If the corresponding test is not administered, the wrong test is administered or there are other test discrepancies, the course could be disapproved.
3. Perkins accountability requirements for school districts and the state include reporting of CTE concentrator technical skill attainment. This accountability measure is met through the Utah Skill Certificate Program. Perkins also requires skill testing data to be disaggregated to show the performance levels of special population students. Perkins defines special populations as: individuals with disabilities; individuals from economically disadvantaged families, including foster children; individuals preparing for non-traditional fields; single pregnant women; displaced homemakers; and individuals with limited English proficiency.
4. All students enrolled in the class grades 9-12 should participate in skill certificate testing. Students who have IEPs or 504 plans can use identified accommodations for testing. Students who are Limited English proficient (LEP) should be tested according to their Utah Academic Language Proficiency Assessment (UALPA).
5. Students who are enrolled in a course taken the previous year may take the test in the current year whether or not they have received a CTE Skill Certificate.
6. Students who re-enroll in a semester/trimester course in the same year and have taken the test, but did not earn a CTE Skill Certificate, may take the test again in the same year. District test coordinators must request the USOE to reset the online test system for the student to take the test again.
7. The testing window is the last 20 school days of the trimester/semester. Teachers select the testing date for the class within the testing window.

Examples of end of year testing window:

- Carbon, Emery, Garfield, San Juan - April 23 to May 22
  - Alpine, Nebo, Ogden, Weber – April 30 to May 29
  - Cache Davis, Murray, Granite, Jordan – May 7 to June 5
  - Park City – May 13 to June 12
8. Testing for each class period must be completed within five school days. Day one is the first day students begin the test. All tests must be finalized by day five of that class. Schools on block – schedule would have three block classes to complete testing. The five day testing window is specific to the teacher and class period and varies between teachers at the same school.

# New Course Approval Issues

## Review of Rubric for New Course Approval

### Required Areas

1. This course is designated for grades 9-12.
2. This course is included in a state approved CTE Pathway in one or more CTE program areas.
3. This course is competency based with Utah State CTE standards and objectives.

### Ranked Areas (3-clear evidence; 2-some evidence; 1-no evidence)

4. This course directly or indirectly prepares students for employment in occupations that do not traditionally require baccalaureate or advanced degrees.
5. This course is part of a CTE HS to College articulation agreement.
6. Students learn essential life skills and employability skills in this course.
7. The curriculum for this course is aligned to business and industry standards.
8. Students can earn skill certificates in this course.

## Review of New Course Application Form (Key requirements)

1. Is there a USOE Specialist Sponsor?
2. What are the license area & endorsement requirements?
  - a. Is training available to complete the endorsement?
  - b. Who is responsible for providing the endorsement training?
3. Is the course exploratory or skill development?
4. Grade level? Is this a secondary or post secondary course?
  - a. Is this part of a sequence of courses?
  - b. Is there concurrent credit available?
5. What graduation credit is earned?
6. Where does this fit in National CIP Code numbers?
7. Have standards and objectives been established?
  - a. Is there a Skill Certification test?
  - b. What graduation credit is earned?
8. Is there a strong need for the course?
  - a. What is the market demand for employment in this area of instruction?
  - b. What is the potential enrollment and student interest?
  - c. Does this course duplicate or compete with post-secondary courses in the region?
9. Operational cost?
  - a. Can the course be duplicated in all regions of the State?
10. Does the course support academic achievement?

## Other Concerns

1. Courses driven by grants are not the ways to drive educational needs.
2. What is our CTE role? Is our role primarily secondary education?
3. Does the course better fit in post-secondary or custom fit programs?
4. Should a new course request be initiated in secondary education?
5. Are we circumventing the traditional academic foundation courses of math, English, and science?
6. Is the course academic with a CTE application; or CTE with a strong application of academic concepts?
7. Do we fund courses that our regular CTE teachers are unqualified to teach?
8. How do we get an academic teacher endorsed?
9. What is the connection between the ATC and the state universities for students?
10. Should we allow courses to operate on an experimental basis? How do you discontinue the course if necessary?



# CAREER TECHNICAL EDUCATION NEW COURSE APPLICATION

## Required Information:

USOE Specialist Sponsor: Darrell Andelin

Name of Course: Materials Science

CTE Program Area: Technology and Engineering

License(s) Area Required: Secondary Education

Endorsement(s) Required: Chemistry or Technology and Engineering (with documented competence in Chemistry) + CTE approved training course for all teachers

Check One: ☒ Exploratory/Foundational ☐ Skill Development Grade Level(s): 10 – 12

National standards are in place? ☐ Yes ☒ No

National Career Cluster and Pathway: Science, Technology, Engineering & Mathematics and Manufacturing

National C.I.P. Title: Materials Science

National C.I.P. Code: 14.3101

Proposed Draft Standards have been developed? ☐ Yes ☒ No

(Attach proposed draft course description and state standards to this application.)

Will this new course be duplicating or competing with post-secondary courses in the region? ☐ Yes ☒ No

Statement of Need (50 words or less):

Utah has one of the highest concentrations of advanced composites industries in the world with more than 123 companies. Wages are 77% above state averages with tremendous employment growth potential. Material Science is part of the engineering curriculum in every major university in Utah plus Salt Lake Community College. In addition, Composite Technology programs exist at Davis ATC and Ogden-Weber ATC. The growth potential of this industry in Utah suggests the need for an applied chemistry course which will better prepare students for engineering or composite manufacturing careers.

All new courses must receive approval from the groups listed below.

Approval Information						
Date	Authorization				Group	
Sept. 2007	Check one:	<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/> No	Program Area / Industry Advisory Committee (attach minutes)	
2007	Check one:	<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/> No	State Career and Technical Education Section	
8/27/08	Check one:	<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/> No	CTE Consortium (attach minutes)	
9/16/08	Check one:	<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/> No	District CTE Directors	
					Mary Shumway, State CTE Director	

After approval and by October 1<sup>st</sup>, submit this form with attachments as requested to:

**Mary Shumway, CTE Director**

Utah State Office of Education, 250 E 500 S, PO Box 144200, Salt Lake City, UT 84114-4200

### **Additional Information:**

Explain/describe the added operational costs (if any) associated with this course.

There will be costs associated with the Equipment needed to run the program. The program could be run in a chemistry lab with some modifications and additional equipment. Estimated costs range from \$10,000 - \$20,000 depending on existing equipment.

How does this course support academic achievement? Attach course standards and objectives cross-walked to the State Core for Language Arts, Math, and Science.

This is an applied chemistry course which will help students understand academic concepts through an applied hands-on curriculum. The Material Science curriculum directly integrates science, math and language arts standards into the course.

What graduation requirements are met by this course? (e.g. ATE, Science, Math, etc.) What exit competencies are demonstrated in this course? (e.g. Writing, Reading, Math, Service, etc.)

Material Science is intended as an elective CTE course with a third-science credit option. A detailed curriculum is available from Energy Concepts, Inc., including experiments, journal questions, unit tests, and a teacher's guide. Teacher training is also available from Energy Concepts, Inc.

What is the potential participation and anticipated implementation from districts and schools? 5-year projection.

Initial implementation will be Morgan High School, DATC, and Ogden-Weber ATC. A 5-year projection could include schools across the entire Wasatch Front.

Skill Certificate and/or National Certificate Test planned or in place?

☒ Yes ☐ No **Planned**

Tech Prep – Is this a part of a sequence of courses? Correlates with courses at Ogden-Weber and Davis ATCs.

☒ Yes ☐ No

CTE course Criteria (To be completed by the planning committee):

Item	Strong Connection	Average Connection	Limited Connection
<b>Exploratory Course</b>			
Academic connection to Math, Science, English, etc.			
Academic rigor			
Aligns with SCANS			
Student interest			
<b>Preparatory Course</b>			
Academic connection to Math, Science, English, etc.	✓		
Academic rigor	✓		
Aligns with SCANS	✓		
Articulation with post-secondary	✓		
Concurrent enrollment			✓
Connection to continuing education	✓		
Connection to employment (e.g. Market demand, etc.)	✓		
Student interest		✓	
Work-based Learning component		✓	



## **Material Science Course Standards and Objectives**

**Standard 1**    **Student will become familiarized with systems and materials used in the laboratory setting and apply acceptable industry safety practices.**

**Objectives:**

1. To take inventory of and become familiar with some of the equipment and materials that is used during the Solids unit of Material Science Technology.
2. To take inventory of and become familiar with some of the equipment and materials used in the Metals unit of Material Science Technology.
3. To take inventory of and become familiar with some of the equipment and materials used in the Ceramics unit of Material Science Technology.
4. To take inventory of and become familiar with the equipment and materials used in the Polymers unit of Material Science Technology.
5. To take inventory of and become familiar with the equipment and material used in the Composites unit of Material Science Technology.
6. To recognize and become aware of safety concerns associated with working in a laboratory environment.

**Standard 2**    **Students will become acquainted with the chemistry and characteristics of solids in order to understand the chemistry and characteristics of metals, ceramics, polymers and composites.**

**Objectives:**

1. Classify solids using the periodic chart
2. State why Material Science is primarily involved with solids.
3. Begin to classify solids based upon their properties.
4. Explain how heat and energy are related to different states of matter.
5. Know the principle parts of the atom.
6. Demonstrate how the periodic table is a useful tool.
7. List the different types of chemical bonds.
8. Explain that solids are crystalline or amorphous.
9. Know the three common crystalline structures for metals.
10. Know what an allotrope is.
11. Explain that some solids may have more than one crystalline structure.
12. Be able to list two ways that crystals can be grown.
13. Explain that crystalline solids are usually conglomerations of tiny crystals called grains.
14. Explain that metals tend to become more stable by losing electrons to form ions and ionic compounds.
15. Explain that crystal imperfections influence the properties of materials.
16. Use a reactivity chart to determine which of two elements is more reactive.
17. Explain that metals tend to oxidize faster when heated.
18. List characteristics of both oxidation and reduction.
19. Use density and/or specific gravity formulas to make calculations.



## Materials Science Standards and Objectives

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**Standard 3** Students will develop an understanding of some of the characteristics of metals and why metals behave as they do. Students learn what metals are, properties of metals, how alloys are formed and how heat treatment can change the mechanical properties of metals. They also learn about manufacturing processes.

**Objectives:**

1. State several properties of metals.
2. Identify where the metallic elements are located on the periodic table.
3. Explain that the term metal includes elements and alloys.
4. Classify a material as a metal or a nonmetal.
5. Explain why reforming and manipulating metals at room temperatures causes work hardening.
6. Explain that copper was the first widely used metal because it has a moderate melting point and occurs naturally.
7. Show that a better understanding of chemistry resulted in the rapid development of metals.
8. Explain that ores are mixtures that contain a desired metal.
9. State that metals undergo reduction is used to claim most metals from their ores.
10. State that brass is formed by alloying copper and zinc.
11. Demonstrate that heating metals speeds their rate of oxidation.
12. Show that heating metals to a high temperature will cause them to emit light.
13. State that an alloy is a mixture that may possess more desirable characteristics than the elements from which it was formed.
14. State that the oxidation of a metal involves the loss of valence electrons by that metal.
15. Use a reactivity chart to predict if one metal will reduce another.
16. Know that the ductility of a metal is related to its crystalline structure.
17. Explain that an energy change occurs during a phase change, including a solid state phase change.
18. Interpret a phase diagram for a pure crystalline substance.
19. List at least two reasons for forming alloys.
20. Define an alloy.
21. Identify a binary phase diagram.
22. Identify the eutectic temperature on a binary phase diagram and explain what the eutectic point is.
23. Explain that materials can be locked into a particular crystalline state by quenching.
24. Explain the difference between heat and temperature.
25. Show that most alloys do not have a definite melting point.
26. State that a material is in equilibrium when that material is in a state of minimum energy for that particular temperature.
27. Describe how imperfections in crystals influence a metal's ability to be reshaped.
28. Know that reshaping a metal at room temperature causes the metal to become work hardened.
29. Demonstrate how annealing is a heat treatment that softens metals.
30. Define what a ferrous metal is.
31. Describe how the amount of carbon in steel greatly affects the strength and hardness of steel.
32. Explain how the allotropic nature of iron is extremely important in the formation of steel.
33. Demonstrate how quenching helps make steel become stronger and harder.

## **Materials Science Standards and Objectives**

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34. Know that tempering is a heat treatment that reduces the brittleness in steel.
35. State why case hardening is high temperature surface treatment that makes the metal harder.
36. Demonstrate that some nonferrous alloys can be made harder by precipitation hardening.
37. Write the composition of sterling silver.

**Standard 4** Students learn about the characteristics of ceramics and why they behave as they do. Students will learn what ceramics are, the properties of ceramics, characteristics of glass, and compare ceramics to metals. They will learn about some manufacturing processes used to form ceramics.

**Objectives:**

1. List at least four characteristic properties of ceramics.
2. Explain why ceramics are not good conductors of electricity.
3. State the types of bonds associated with ceramics.
4. State that clay is workable and pliable because of the water content.
5. Clarify that ceramics are composed of compounds of metals or semimetals combined with nonmetals.
6. Explain how ceramics relate to the periodic table
7. Show that clay loses volume and mass when it dries.
8. Explain that clay is made stronger by firing.
9. Explain that glass is a ceramic that is amorphous.
10. Tell why glass is considered different from most ceramics.
11. State that glass is a mixture of oxides including a glass former, a modifier, and sometimes an intermediate.
12. Demonstrate how a modifier lowers the melting temperature of a glass.
13. Name and describe at least three different types of glass.
14. State that silica is the main ingredient in most glass.
15. Use a glass cutter to score and break glass.
16. Explain that glass is stronger when placed under compression and weaker when placed under tension.
17. Use polarizing material to check for stress in glass.
18. State that annealing reduces stress in glass.
19. State that when the resistance to flow in a fluid increases, the viscosity increases.
20. Explain that glass is tempered by rapid cooling.
21. Tell that tempering places the surface of a glass under compression.
22. Demonstrate that metal oxides are used for coloring glass.
23. List at least four properties of glass
24. Explain that the properties of glass can be varied by the composition of the glass.
25. State that a glass-ceramic is a crystalline material formed from glass.
26. Show that soil can be made into glass.
27. Explain that glasses with different coefficients of thermal expansion are incompatible.

## Materials Science Standards and Objectives

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**Standard 5** Students learn about some of the characteristics of polymers and why polymers act the way they do. Students learn what polymers are, some of the properties of polymers and some manufacturing processes used to form polymers.

**Objectives:**

1. Explain what a polymer is.
2. List the three primary classifications of synthetic polymers.
3. Demonstrate how cross-linking affects polymers.
4. State that polymers may be formed by addition or condensation
5. Explain that polymers are molecular compounds made of nonmetals.
6. Explain how polymers relate to the periodic table
7. Define a hydrocarbon.
8. Explain that a large number of monomers can be used to make polymers.
9. State that changing one part of monomer changes the polymer made from that monomer.
10. Classify and separate polymers based upon some physical properties.
11. Describe how individual polymers can be formed from two or more different types of monomers.
12. State that synthetic polymers are used to make a large number of fabrics.
13. Explain that nylon is a copolymer formed by condensation.
14. To realize that there are several types of nylon.
15. State that the characteristics of Elastomers place them between thermoplastics and thermosets.
16. Explain that cross-linking is an integral part of forming elastomers.
17. Demonstrate that cross-linking will make an elastomer more firm.
18. Explain why synthetic elastomers were created.
19. Explain that plastics are separated into seven groups for recycling.
20. State that most recycled plastics are thermoplastics.
21. Explain that most plastic containers have a recycle symbol on them.
22. List several ways that the properties of each type of polymer can be modified.
23. Describe what a branched polymer is.
24. Explain what cross-linking in a polymer is.
25. Describe what a side group is and that its size can influence the properties of a polymer.
26. Explain how a silicon-based polymer is different from a carbon-based polymer.
27. List some typical properties of silicone rubber.
28. State some purposes of fillers and other additives.
29. Explain what a plasticizer is and what it does.
30. Describe how heat will return many distorted plastics to their original shape.
31. State that most synthetic polymers are produced from petroleum.
32. Describe how epoxy is a thermoset.
33. State that foam can be made from many different types of polymers.



## Materials Science Standards and Objectives

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**Standard 6** Students learn what composites are and why they are used. They will also understand that composites are lighter and stronger than other materials.

**Objectives:**

1. Define a composite.
2. Explain why composites are formed.
3. Explain how composites relate to the periodic table
4. List the three major classifications of composites.
5. Demonstrate that a delamination weakens a laminar composite.
6. Describe wood as a natural composite.
7. Explain that wood is made up primarily of tubular cells composed of cellulose and held together by lignin.
8. List some differences between softwoods and hardwoods.
9. List at least four different human-fabricated wood composites.
10. Explain the importance of the bond in a laminar composite.
11. Describe concrete as a particulate reinforced composite.
12. List the main components of concrete.
13. Clarify the difference between concrete and cement.
14. State that too much water weakens concrete when it is mixed.
15. State that concrete cures rather than dries.
16. Describe a good mix ratio of components for concrete.
17. Describe a fiber reinforced composite.
18. Explain that there are many types of fibers that exist in many different physical configurations.
19. Explain that the fiber supports the majority of the load in most fiber reinforced composites.
20. Explain how the amount of fiber and its orientation affect the composite's strength.
21. State that glass fiber reinforced polymers (fiberglass) are the most common fiber reinforced composites.
22. List at least three commonly used types of fibers for fiber reinforced polymers.
23. Define what hybrid composites are and explain why they are being created.
24. Know the high expectations held for ceramic matrix composites and their major problem is a lack of fracture toughness.
25. List some characteristics of carbon and Kevlar fibers.



### Material Science

Chemistry Core	Std 1	Std 2	Std 3	Std 4	Std 5	Std 6
<b>Standard 1</b> Student will become familiarized with systems and materials used in the laboratory setting and apply acceptable industry safety practices.						
<b>Objectives:</b>						
1. To take inventory of and become familiar with some of the equipment and materials that is used during the Solids unit of Material Science Technology.						
2. To take inventory of and become familiar with some of the equipment and materials used in the Metals unit of Material Science Technology.						
3. To take inventory of and become familiar with some of the equipment and materials used in the Ceramics unit of Material Science Technology.						
4. To take inventory of and become familiar with the equipment and materials used in the Polymers unit of Material Science Technology.						
5. To take inventory of and become familiar with the equipment and material used in the Composites unit of Material Science Technology.						
6. To recognize and become aware of safety concerns associated with working in a laboratory environment.						
<b>Standard 2</b> Students will become acquainted with the chemistry and characteristics of solids in order to understand the chemistry and characteristics of metals, ceramics, polymers and composites.						

## Material Science

Chemistry Core	Std 1	Std 2	Std 3	Std 4	Std 5	Std 6
<b>Objectives:</b>						
1. Classify solids using the periodic chart	X					
2. State why Material Science is primarily involved with solids.	X					
3. Begin to classify solids based upon their properties.	X					
4. Explain how heat and energy are related to different states of matter.		X				
5. Know the principle parts of the atom.	X					
6. Demonstrate how the periodic table is a useful tool.	X					
7. List the different types of chemical bonds.			X			
8. Explain that solids are crystalline or amorphous.				X		
9. Know the three common crystalline structures for metals.				X		
10. Know what an allotrope is.		X				
11. Explain that some solids may have more than one crystalline structure.				X		
12. Be able to list two ways that crystals can be grown.				X		
13. Explain that crystalline solids are usually conglomerations of tiny crystals called grains.			X			
14. Explain that metals tend to become more stable by losing electrons to form ions and ionic compounds.		X				
15. Explain that crystal imperfections influence the properties of materials.			X			
16. Use a reactivity chart to determine which of two elements is more reactive.				X		
17. Explain that metals tend to oxidize faster when heated.				X		
18. List characteristics of both oxidation and reduction.				X		



## Material Science

Chemistry Core	Std 1	Std 2	Std 3	Std 4	Std 5	Std 6
19. Use density and/or specific gravity formulas to make calculations.	X			X		
<b>Standard 3</b> Students will develop an understanding of some of the characteristics of metals and why metals behave as they do. Student learn what metals are, properties of metals, how alloys are formed and how heat treatment can change the mechanical properties of metals. They also learn about manufacturing processes.						
<b>Objectives:</b>						
1. State several properties of metals.			X			
2. Identify where the metallic elements are located on the periodic table.	X					
3. Explain that the term metal includes elements and alloys.	X					
4. Classify a material as a metal or a nonmetal.	X					
5. Explain why reforming and manipulating metals at room temperatures causes work hardening.		X		X		
6. Explain that copper was the first widely used metal because it has a moderate melting point and occurs naturally.					X	
7. Show that a better understanding of chemistry resulted in the rapid development of metals.	X					
8. Explain that ores are mixtures that contain a desired metal.	X					
9. State that metals undergo reduction is used to claim most metals from their ores.						X
10. State that brass is formed by alloying copper and zinc.			X			
11. Demonstrate that heating metals speeds their rate of oxidation.					X	X
12. Show that heating metals to a high temperature will cause them to emit light.				X	X	

## Material Science

Chemistry Core	Std 1	Std 2	Std 3	Std 4	Std 5	Std 6
13. State that an alloy is a mixture that may possess more desirable characteristics than the elements from which it was formed.			X			
14. State that the oxidation of a metal involves the loss of valence electrons by that metal.		X				
15. Use a reactivity chart to predict if one metal will reduce another.				X	X	
16. Know that the ductility of a metal is related to its crystalline structure.			X			
17. Explain that an energy change occurs during a phase change, including a solid state phase change.		X		X		
18. Interpret a phase diagram for a pure crystalline substance.				X		
19. List at least two reasons for forming alloys.			X			
20. Define an alloy.	X					
21. Identify a binary phase diagram.				X		
22. Identify the eutectic temperature on a binary phase diagram and explain what the eutectic point is.					X	
23. Explain that materials can be locked into a particular crystalline state by quenching.					X	
24. Explain the difference between heat and temperature.					X	
25. Show that most alloys do not have a definite melting point.					X	
26. State that a material is in equilibrium when that material is in a state of minimum energy for that particular temperature.					X	
27. Describe how imperfections in crystals influence a metal's ability to be reshaped.			X			

## Material Science

Chemistry Core	Std 1	Std 2	Std 3	Std 4	Std 5	Std 6
28. Know that reshaping a metal at room temperature causes the metal to become work hardened.					X	
29. Demonstrate how annealing is a heat treatment that softens metals.					X	
30. Define what a ferrous metal is.	X					
31. Describe how the amount of carbon in steel greatly affects the strength and hardness of steel.			X			
32. Explain how the allotropic nature of iron is extremely important in the formation of steel.		X				
33. Demonstrate how quenching helps make steel become stronger and harder.						X
34. Know that tempering is a heat treatment that reduces the brittleness in steel.					X	
35. State why case hardening is high temperature surface treatment that makes the metal harder.					X	
36. Demonstrate that some nonferrous alloys can be made harder by precipitation hardening.						X
37. Write the composition of sterling silver.	X					
<b>Standard 4 Students learn about the characteristics of ceramics and why they behave as they do. Students will learn what ceramics are, the properties of ceramics, characteristics of glass, and compare ceramics to metals. They will learn about some manufacturing processes used to form ceramics.</b>						
<b>Objectives:</b>						
1. List at least four characteristic properties of ceramics.			X			
2. Explain why ceramics are not good conductors of electricity.			X			



## Material Science

Chemistry Core	Std 1	Std 2	Std 3	Std 4	Std 5	Std 6
3. State the types of bonds associated with ceramics.			X			
4. State that clay is workable and pliable because of the water content.						X
5. Clarify that ceramics are composed of compounds of metals or semimetals combined with nonmetals.	X					
6. Explain how ceramics relate to the periodic table	X					
7. Show that clay loses volume and mass when it dries.			X			
8. Explain that clay is made stronger by firing.					X	
9. Explain that glass is a ceramic that is amorphous.	X		X			
10. Tell why glass is considered different from most ceramics.	X		X			
11. State that glass is a mixture of oxides including a glass former, a modifier, and sometimes an intermediate.			X		X	
12. Demonstrate how a modifier lowers the melting temperature of a glass.					X	X
13. Name and describe at least three different types of glass.	X		X			
14. State that silica is the main ingredient in most glass.	X		X			
15. Use a glass cutter to score and break glass.						
16. Explain that glass is stronger when placed under compression and weaker when placed under tension.					X	
17. Use polarizing material to check for stress in glass.			X			
18. State that annealing reduces stress in glass.			X		X	
19. State that when the resistance to flow in a fluid increases, the viscosity increases.						X

## Material Science

Chemistry Core	Std 1	Std 2	Std 3	Std 4	Std 5	Std 6
20. Explain that glass is tempered by rapid cooling.					X	
21. Tell that tempering places the surface of a glass under compression.					X	
22. Demonstrate that metal oxides are used for coloring glass.	X		X	X		
23. List at least four properties of glass	X		X			
24. Explain that the properties of glass can be varied by the composition of the glass.			X			
25. State that a glass-ceramic is a crystalline material formed from glass.			X			
26. Show that soil can be made into glass.			X			
27. Explain that glasses with different coefficients of thermal expansion are incompatible.				X	X	
<b>Standard 5</b> Students learn about some of the characteristics of polymers and why polymers act the way they do. Students learn what polymers are, some of the properties of polymers and some manufacturing processes used to form polymers.						
<b>Objectives:</b>						
1. Explain what a polymer is.	X					
2. List the three primary classifications of synthetic polymers.	X					
3. Demonstrate how cross-linking affects polymers.			X			
4. State that polymers may be formed by addition or condensation			X			
5. Explain that polymers are molecular compounds made of nonmetals.	X					
6. Explain how polymers relate to the periodic table	X					
7. Define a hydrocarbon.	X					
8. Explain that a large number of monomers can be used to make polymers.	X		X			

## Material Science

Chemistry Core	Std 1	Std 2	Std 3	Std 4	Std 5	Std 6
9. State that changing one part of monomer changes the polymer made from that monomer.			X			
10. Classify and separate polymers based upon some physical prosperities.	X					
11. Describe how individual polymers can be formed from two or more different types of monomers.			X			
12. State that synthetic polymers are used to make a large number of fabrics.			X			
13. Explain that nylon is a copolymer formed by condensation.					X	
14. To realize that there are several types of nylon.			X			
15. State that the characteristics of Elastomers place them between thermoplastics and thermosets.			X			
16. Explain that cross-linking is an integral part of forming elastomers.			X			
17. Demonstrate that cross-linking will make an elastomer more firm.			X			
18. Explain why synthetic elastomers were created.			X			
19. Explain that plastics are separated into seven groups for recycling.			X			
20. State that most recycled plastics are thermoplastics.						
21. Explain that most plastic containers have a recycle symbol on them.						
22. List several ways that the properties of each type of polymer can be modified.			X			
23. Describe what a branched polymer is.			X			
24. Explain what cross-linking in a polymer is.			X			
25. Describe what a side group is and that its size can influence the properties of a polymer.			X			
26. Explain how a silicon-based polymer is different form a carbon-based polymer.			X			
27. List some typical properties of silicone rubber.			X			



## Material Science

Chemistry Core	Std 1	Std 2	Std 3	Std 4	Std 5	Std 6
28. State some purposes of fillers and other additives.						
29. Explain what a plasticizer is and what it does.			X			
30. Describe how heat will return many distorted plastics to their original shape.					X	
31. State that most synthetic polymers are produced from petroleum.			X			
32. Describe how epoxy is a thermoset.					X	X
33. State that foam can be made from many different types of polymers.			X			
<b>Standard 6 Students learn what composites are and why they are used. They will also understand that composites and lighter and stronger than other materials.</b>						
<b>Objectives:</b>	X					
1. Define a composite.	X		X			
2. Explain why composites are formed.			X			
3. Explain how composites relate to the periodic table	X					
4. List the three major classifications of composites.			X			
5. Demonstrate that a delamination weakens a laminar composite.			X			
6. Describe wood as a natural composite.			X			
7. Explain that wood is made up primarily of tubular cells composed of cellulose and held together by lignin.	X		X			
8. List some differences between softwoods and hardwoods.			X			
9. List at least four different human-fabricated wood composites.			X			
10. Explain the importance of the bond in a laminar composite.			X			

## Material Science

Chemistry Core	Std 1	Std 2	Std 3	Std 4	Std 5	Std 6
11. Describe concrete as a particulate reinforced composite.			X			
12. List the main components of concrete.	X		X			
13. Clarify the difference between concrete and cement.			X			
14. State that too much water weakens concrete when it is mixed.						X
15. State that concrete cures rather than dries.						X
16. Describe a good mix ratio of components for concrete.			X			
17. Describe a fiber reinforced composite.	X		X			
18. Explain that there are many types of fibers that exist in many different physical configurations.			X			
19. Explain that the fiber supports the majority of the load in most fiber reinforced composites.			X			
20. Explain how the amount of fiber and its orientation affect the composite's strength.			X			
21. State that glass fiber reinforced polymers (fiberglass) are the most common fiber reinforced composites.			X			
22. List at least three commonly used types of fibers for fiber reinforced polymers.			X			
23. Define what hybrid composites are and explain why they are being created.			X			
24. Know the high expectations held for ceramic matrix composites and their major problem is a lack of fracture toughness.			X			
25. List some characteristics of carbon and Kevlar fibers.			X			

## Chemistry Core Curriculum

### Science Benchmark

Matter on Earth and in the universe is made of atoms that have structure, mass, and a common origin. The periodic table is used to organize elements by structure. A relationship exists between the chemical behavior and the structure of atoms. The periodic table reflects this relationship.

The nucleus of an atom is a tiny fraction of the volume of the atom. Each proton or neutron in the nucleus is nearly 2,000 times the mass of an electron. Electrons move around the nucleus.

The modern atomic model has been developed using experimental evidence. Atomic theories describe the behavior of atoms as well as energy changes in the atom. Energy changes in an isolated atom occur only in discrete jumps. Change in structure and composition of the nucleus result in the conversion of matter into energy.

**STANDARD I: Students will understand that all matter in the universe has a common origin and is made of atoms, which have structure and can be systematically arranged on the periodic table.**

**Objective 1:** Recognize the origin and distribution of elements in the universe.

- Identify evidence supporting the assumption that matter in the universe has a common origin.
- Recognize that all matter in the universe and on earth is composed of the same elements.
- Identify the distribution of elements in the universe.
- Compare the occurrence of heavier elements on earth and the universe.

**Objective 2:** Relate the structure, behavior, and scale of an atom to the particles that compose it.

- Summarize the major experimental evidence that led to the development of various atomic models, both historical and current.
- Evaluate the limitations of using models to describe atoms.
- Discriminate between the relative size, charge, and position of protons, neutrons, and electrons in the atom.
- Generalize the relationship of proton number to the element's identity.
- Relate the mass and number of atoms to the gram-sized quantities of matter in a mole.

**Objective 3:** Correlate atomic structure and the physical and chemical properties of an element to the position of the element on the periodic table.

- Use the periodic table to correlate the number of protons, neutrons, and electrons in an atom.
- Compare the number of protons and neutrons in isotopes of the same element.
- Identify similarities in chemical behavior of elements within a group.
- Generalize trends in reactivity of elements within a group to trends in other groups.
- Compare the properties of elements (e.g., metal, nonmetallic, metalloid) based on their position in the periodic table.

**STANDARD II:** Students will understand the relationship between energy changes in the atom specific to the movement of electrons between energy levels in an atom resulting in the emission or absorption of quantum energy. They will also understand that the emission of high-energy particles results from nuclear changes and that matter can be converted to energy during nuclear reactions.

**Objective 1:** Evaluate quantum energy changes in the atom in terms of the energy contained in light emissions.

- Identify the relationship between wavelength and light energy.
- Examine evidence from the lab indicating that energy is absorbed or released in discrete units when electrons move from one energy level to another.
- Correlate the energy in a photon to the color of light emitted.
- After observing spectral emissions in the lab (e.g., flame test, spectrum tubes), identify unknown elements by comparison to known emission spectra.

**Objective 2:** Evaluate how changes in the nucleus of an atom result in emission of radioactivity.

- Recognize that radioactive particles and wavelike radiations are products of the decay of an unstable nucleus.
- Interpret graphical data relating half-life and age of a radioactive substance.
- Compare the mass, energy, and penetrating power of alpha, beta, and gamma radiation.
- Compare the strong nuclear force to the amount of energy released in a nuclear reaction and contrast it to the amount of energy released in a chemical reaction.
- After researching, evaluate and report the effects of nuclear radiation on humans or other organisms.

Science language students should use:	atom, element, nucleus, proton, neutron, electron, isotope, metal, nonmetal, metalloid, malleable, conductive, periodic table, quanta, wavelength, radiation, emit, absorb, spectrum, half-life, fission, fusion, energy level, mole
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Science Benchmark

Atoms form bonds with other atoms by transferring or sharing electrons. The arrangement of electrons in an atom, particularly the valence electrons, determines how an atom can interact with other atoms.

The types of chemical bonds holding them together determine many of the physical properties of compounds. The formation of compounds results in a great diversity of matter from a limited number of elements.

**STANDARD III: Students will understand chemical bonding and the relationship of the type of bonding to the chemical and physical properties of substances.**

**Objective 1:** Analyze the relationship between the valence (outermost) electrons of an atom and the type of bond formed between atoms.

- Determine the number of valence electrons in atoms using the periodic table.
- Predict the charge an atom will acquire when it forms an ion by gaining or losing electrons.
- Predict bond types based on the behavior of valence (outermost) electrons.
- Compare covalent, ionic, and metallic bonds with respect to electron behavior and relative bond strengths.

**Objective 2:** Explain that the properties of a compound may be different from those of the elements or compounds from which it is formed.

- Use a chemical formula to represent the names of elements and numbers of atoms in a compound and recognize that the formula is unique to the specific compound.
- Compare the physical properties of a compound to the elements that form it.
- Compare the chemical properties of a compound to the elements that form it.
- Explain that combining elements in different proportions results in the formation of different compounds with different properties.

**Objective 3:** Relate the properties of simple compounds to the type of bonding, shape of molecules, and intermolecular forces.

- Generalize, from investigations, the physical properties (e.g., malleability, conductivity, solubility) of substances with different bond types.
- Given a model, describe the shape and resulting polarity of water, ammonia, and methane molecules.
- Identify how intermolecular forces of hydrogen bonds in water affect a variety of physical, chemical, and biological phenomena (e.g., surface tension, capillary action, boiling point).

Science language  
students should use:

chemical property, physical property, compound, valence electrons, ionic, covalent, malleability, conductivity, solubility, intermolecular, polarity

### Science Benchmark

In a chemical reaction new substances are formed as atoms and molecules are rearranged. The concept of atoms explains the conservation of matter, since the number of atoms stays the same in a chemical reaction no matter how they are rearranged; the total mass stays the same. Although energy can be absorbed or released in a chemical reaction, the total amount of energy and matter in it remains constant. Many reactions attain a state of equilibrium. Many ordinary activities, such as baking, involve chemical reactions.

The rate of chemical reactions of atoms and molecules depends upon how often they encounter one another, which is a function of concentration, temperature, and pressure of the reacting materials. Catalysts can be used to change the rate of chemical reactions. Under proper conditions reactions may attain a state of equilibrium.

**STANDARD IV: Students will understand that in chemical reactions matter and energy change forms, but the amounts of matter and energy do not change.**

**Objective 1:** Identify evidence of chemical reactions and demonstrate how chemical equations are used to describe them.

- Generalize evidences of chemical reactions.
- Compare the properties of reactants to the properties of products in a chemical reaction.
- Use a chemical equation to describe a simple chemical reaction.
- Recognize that the number of atoms in a chemical reaction does not change.
- Determine the molar proportions of the reactants and products in a balanced chemical reaction.
- Investigate everyday chemical reactions that occur in a student's home (e.g., baking, rusting, bleaching, cleaning).

**Objective 2:** Analyze evidence for the laws of conservation of mass and conservation of energy in chemical reactions.

- Using data from quantitative analysis, identify evidence that supports the conservation of mass in a chemical reaction.
- Use molar relationships in a balanced chemical reaction to predict the mass of product produced in a simple chemical reaction that goes to completion.
- Report evidence of energy transformations in a chemical reaction.
- After observing or measuring, classify evidence of temperature change in a chemical reaction as endothermic or exothermic.
- Using either a constructed or a diagrammed electrochemical cell, describe how electrical energy can be produced in a chemical reaction (e.g., half reaction, electron transfer).
- Using collected data, report the loss or gain of heat energy in a chemical reaction.

**STANDARD V: Students will understand that many factors influence chemical reactions and some reactions can achieve a state of dynamic equilibrium.**

**Objective 1:** Evaluate factors specific to collisions (e.g., temperature, particle size, concentration, and catalysts) that affect the rate of chemical reaction.

- a. Design and conduct an investigation of the factors affecting reaction rate and use the findings to generalize the results to other reactions.
- b. Use information from graphs to draw warranted conclusions about reaction rates.
- c. Correlate frequency and energy of collisions to reaction rate.
- d. Identify that catalysts are effective in increasing reaction rates.

**Objective 2:** Recognize that certain reactions do not convert all reactants to products, but achieve a state of dynamic equilibrium that can be changed.

- a. Explain the concept of dynamic equilibrium.
- b. Given an equation, identify the effect of adding either product or reactant to a shift in equilibrium.
- c. Indicate the effect of a temperature change on the equilibrium, using an equation showing a heat term.

Science language students should use:	chemical reaction, matter, law of conservation of mass, law of conservation of energy, temperature, electrochemical cell, entropy, chemical equation, endothermic, exothermic, heat, rate, catalyst, concentration, collision theory, equilibrium, half reaction
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Science Benchmark

Solutions make up many of the ordinary substances encountered in everyday life.

The relative amounts of solutes and solvents determine the concentration and the physical properties of a solution. Two important categories of solutions are acids and bases.

**STANDARD VI: Students will understand the properties that describe solutions in terms of concentration, solutes, solvents, and the behavior of acids and bases.**

**Objective 1:** Describe factors affecting the process of dissolving and evaluate the effects that changes in concentration have on solutions.

- Use the terms solute and solvent in describing a solution.
- Sketch a solution at the particle level.
- Describe the relative amount of solute particles in concentrated and dilute solutions and express concentration in terms of molarity and molality.
- Design and conduct an experiment to determine the factors (e.g., agitation, particle size, temperature) affecting the relative rate of dissolution.
- Relate the concept of parts per million (PPM) to relevant environmental issues found through research.

**Objective 2:** Summarize the quantitative and qualitative effects of colligative properties on a solution when a solute is added.

- Identify the colligative properties of a solution.
- Measure change in boiling and/or freezing point of a solvent when a solute is added.
- Describe how colligative properties affect the behavior of solutions in everyday applications (e.g., road salt, cold packs, antifreeze).

**Objective 3:** Differentiate between acids and bases in terms of hydrogen ion concentration.

- Relate hydrogen ion concentration to pH values and to the terms acidic, basic or neutral.
- Using an indicator, measure the pH of common household solutions and standard laboratory solutions, and identify them as acids or bases.
- Determine the concentration of an acid or a base using a simple acid-base titration.
- Research and report on the uses of acids and bases in industry, agriculture, medicine, mining, manufacturing, or construction.
- Evaluate mechanisms by which pollutants modify the pH of various environments (e.g., aquatic, atmospheric, soil).

Science language students should use:	solution, solute, solvent, concentration, molarity, percent concentration, colligative property, boiling point, freezing point, acid, base, pH, indicator, titration, hydrogen ion, neutralization, parts per million, concentrated, dilute, dissolve
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# \* Semester Credits

## INDIANA CORE40

Course and Credit Requirements	
English/ Language Arts *	8 credits (4) Including a balance literature, composition and speech.
Mathematics *	6 credits (3) 2 credits: Algebra I 2 credits: Geometry 2 credits: Algebra II <i>Or complete Integrated Math series I, II, and III for 6 credits.</i> All students are required to take a math or physics course during their junior or senior year.
Science *	6 credits (3) 2 credits: Biology I 2 credits: Chemistry I or Physics I or Integrated Chemistry-Physics 2 credits: any Core 40 science course
Social Studies *	6 credits (3) 2 credits: U.S. History 1 credit: U.S. Government 1 credit: Economics 2 credits: World History/Civilization or Geography/History of the World
Directed Electives *	5 credits (2.5) World Languages Fine Arts Career/Technical
Physical Education *	2 credits (1)
Health and Wellness *	1 credit (.5)
Electives* *	6 credits (3) (Career Academic Sequence Recommended)
<b>40 Total State Credits Required</b>	

Schools may have additional local graduation requirements that apply to all students

\* Specifies the number of electives required by the state. High school schedules provide time for many more electives during the high school years. All students are strongly encouraged to complete a Career Academic Sequences (selecting electives in a deliberate manner) to take full advantage of career exploration and preparation opportunities.

### CORE40 with Academic Honors (minimum 47 credits)

For the **Core 40 with Academic Honors** diploma, students must:

- Complete all requirements for Core 40.
- Earn 2 additional Core 40 math credits.
- Earn 6-8 Core 40 world language credits.
- Earn 2 Core 40 fine arts credits.
- Earn a grade of a "C" or better in courses that will count toward the diploma.
- Have a grade point average of a "B" or better.
- Complete one of the following:
  - Complete AP courses (4 credits) and corresponding AP exams
  - Complete IB (Higher Level) courses (4 credits) and corresponding IB exams
  - Earn a combined score of 1200 or higher on the SAT critical reading and mathematics
  - Score a 26 or higher composite on the ACT
  - Complete dual high school/college credit courses from the Core Transfer Library (6 transferable college credits)
  - Complete a combination of AP course (2 credits) and corresponding AP exams and dual high school/college credit course(s) from the Core Transfer Library (3 transferable college credits)

### CORE40 with Technical Honors (minimum 47 credits)

For the **Core 40 with Technical Honors** diploma, students must:

- Complete all requirements for Core 40.
- Complete a career-technical program (8 or more related credits)
- Earn a grade of "C" or better in courses that will count toward the diploma.
- Have a grade point average of a "B" or better.
- Complete two of the following, one must be A or B:
  - A. Score at or above the following levels on WorkKeys: Reading for Information - Level 6; Applied Mathematics - Level 6; Locating Information - Level 5
  - B. Complete dual high school/college credit courses in a technical area (6 college credits)
  - C. Complete a Professional Career Internship course or Cooperative Education course (2 credits)
  - D. Complete an industry-based work experience as part of two-year technical education program (minimum 140 hours)
  - E. Earn a state-approved, industry-recognized certification

\*Anticipated—State Board action to be complete fall 2007.

Career and Technical Education  
Administrative and High School Program CTE WPU

Rule 911-9 A	Administrative WPU
(1)	20 WPUs <ul style="list-style-type: none"> <li>• Each District</li> <li>• One School District</li> <li>• Half-time Director – min (new)</li> </ul>
(2)	25 WPUs <ul style="list-style-type: none"> <li>• Each District</li> <li>• Multi-District Consolidation</li> <li>• Full-time Director</li> </ul>
(3)	25 WPUs (new) <ul style="list-style-type: none"> <li>• One Charter School*</li> <li>• Services to 1-10 Charters</li> <li>• Additional 5 WPUs for each over 10</li> <li>• Full Time Director</li> </ul>
(4)	10 WPUs (new) <ul style="list-style-type: none"> <li>• One Small School District (NESS)</li> <li>• Can't Consolidate</li> <li>• Part-time Director</li> </ul>

Rule 911-9 C	High School WPU
(1)	10 WPUs <ul style="list-style-type: none"> <li>• Two Program Areas</li> <li>• Six Approved Courses</li> <li>• One CTE Pathway (new)</li> <li>• One CTSO (new)</li> </ul>
(2)	15 WPUs <ul style="list-style-type: none"> <li>• Three Program Areas</li> <li>• Nine Approved Courses</li> <li>• One CTE Pathway (new)</li> <li>• One CTSO</li> </ul>
(3)	20 WPUs <ul style="list-style-type: none"> <li>• Four Program Areas</li> <li>• Twelve Approved Courses</li> <li>• Two CTE Pathways (new)</li> <li>• Two CTSOs</li> </ul>
(4)	25 WPUs <ul style="list-style-type: none"> <li>• Five Program Areas</li> <li>• Fifteen Approved Courses</li> <li>• Two CTE Pathways (new)</li> <li>• Three CTSOs</li> </ul>

\* One Charter School to serve as fiscal agent and employ CTE Director

## CTE Courses Taught at ATCs

- Students can earn
  - High School Credit
  - CTE Credit
  - Pathway Credit
- Districts can count ATC courses
  - Toward the number of elective courses for pathway concentration required for HS WPU generation
  - In reporting Pathway concentrator and completer status of students
  - In recognizing CTE Pathway completers

### Issues:

- Some ATC courses may not be consistent in following the correct course standards and objectives
- Skill testing is not consistently given for courses taught at ATCs
- Student Leadership opportunities may not be connected to appropriate curriculum

### Problems:

- Students sometimes receive credit for coursework that does not meet standards
- Students may concentrate in Pathways without getting the desired focus or preparation for the postsecondary part of the Pathway
- Students may be confused about Pathway participation (ATC courses may not fit into the proper sequence or grouping of courses within a Pathway)

### Possible Solutions:

- CTE Directors
  - Actively review and approve ATC courses allowed for HS Students
  - Make sure correct CIP code is used for courses allowed for HS Students
  - Use Perkins Memorandum of Understanding to clarify expectations
- USOE Specialists
  - Provide information to ATCs about approved courses, including course standards and objectives; provide technical assistance if requested
  - Include ATC courses for HS students in Program Approval visits (at least to review curriculum and instruction relative to course standards and objectives)
  - Review and disapprove ATC courses not using correct CIP code, or not consistent with correct standards and objectives

## **CTSO Activity Summary Sheets 2008-09**

### **DECA**

Fall Leadership Conference-Park City Yarrow, Park City, UT

October 9 – 10, 2008

Was sent on September 5, 2008

### **DEX**

N/A

### **FBLA**

Fall Leadership Conference-Salt Lake Hilton City Center, SLC, UT

October 30

Was sent on September 10, 2008

### **FCCLA**

Fall Leadership Conference-Provo Marriott, Provo, UT

October 8 – 9, 2008

Was sent on May 12, 2008

National Cluster Meeting-Hilton Anatole, Dallas, TX

November 20 – 23, 2008

Was sent on September 22, 2008

### **FFA**

National FFA Convention-Indianapolis, IN

October 22 – 25, 2008

Was sent on August 4, 2008

Utah Farmer Cooperative Co-op Quiz-Lehi, UT

October 8, 2008

Was sent on September 18, 2008

Snow College FFA Field Day

October 14, 2008

Was sent on September 18, 2008

Utah Leadership Conference-Snow College/Richfield, UT

December 5 – 6, 2008

Was sent on October 14, 2008

Utah Leadership Conference-Sheraton/SLC, UT

December 12 – 13, 2008

Was sent on October 14, 2008



**HOSA**

Fall Leadership Conference-Yarrow Hotel, Park City, UT  
October 13 – 14, 2008  
Was sent on June 30, 2008

State Leadership Conference-Davis Conference Center, Layton, UT  
March 19 – 20, 2009  
Was sent on June 30, 2008

National Leadership Conference-Nashville, TN  
June 22/23 – 28, 2009  
Was sent on June 30, 2008

**Skills USA**

Leadership Training Conference-Nashville, TN  
October 9 – 11, 2008  
Was sent on September 5, 2008

**TSA**

N/A

## CTSO Survey Responses

	FBLA		FCCLA		FFA		HOSA		SkillsUSA		TSA	
	CTE	Other	CTE	Other	CTE	Other	CTE	Other	CTE	Other	CTE	Other
Alpine	2	5	3	6	1	4	2		2	5	1	3
Beaver		2		1					1	1		
Box Elder	1	2	1	1	2	3			2	4		
Cache		1		1		3		1				1
Carbon		1								3		
Daggett						1						
Davis	1	6	1	1	1	6	2	1	2	9	1	
Duchesne		4	1	1		3						1
Emery												
Garfield				1		1						
Grand												
Granite		9		6				3	3	17	1	
Iron	2	1		1		1		1	2	3		
Jordan	2	1	1	7		3		2		8		1
Juab	1											
Kane						1				2		
Logan		1										
Millard		1		2		1				3		
Morgan	1	1		2	1	1				2		
Murray										1		
Nebo		4		1	1	5		1	1	3		
North Sanpete		1										
North Summit		1		1						1		
Ogden		2		2						4		
Park City												
Piute		1										
Provo		1		3				1		10	1	
Rich												
Salt Lake		2		4			1	4		5		
San Juan	1	1			1	3				1		
Sevier		1				3			2	1		
South Sanpete						2				1		
South Summit	1					1						
Tintic												
Tooele		3		2		3			1	5		
Uintah	1	1			1	1			1	2		
Wasatch	3	1		1	1	2				2		
Washington	1	4	1	4	2	9	2	1	2	3		
Wayne												
Weber		3		3		2	1	1	1	3		
Total CTE or Advisor	17	61	8	51	11	59	8	16	20	99	4	6
Total per CTSO		78		59		70		24		119		10

# XYZ Elementary Keyboarding

## 2007-08 School Year Summary

School Name	Grade	September Pre Test Avg. WPM	May Post Test Avg. WPM	Total Students Enrolled	Total Grade level Proficient*	2007-08
						Percent
						Proficient
XYZ	5	15	19	64	8	13%
	6	25	25	58	13	22%

\*Proficient = students scoring at or above the state standard of 25 WPM for 5th grade, 30 WPM for 6th grade

## DESKTOP PUBLISHING CLARIFICATION

1. Both Desktop Publishing I and Desktop Publishing II are semester-based courses. There is no year-long version of either of these courses.
2. Yearbook is sometimes paired with one of these courses; hence, students are taking either DTP I or DTP II intertwined with yearbook—a “year-long” course (using the yearbook as the project for the class). CTE funding does not extend to yearbook courses.
3. In order for Desktop Publishing courses to receive funding, the standards & objectives must be taught and the skills test given. Additionally, the teacher must have the appropriate endorsement for DTP.
4. Currently there are no standards for Desktop Publishing II. Janet Goble will remedy this situation by January 2009.
5. Currently there is no skills test for DTP II. After the standards have been completed, a skills test can be created. A decision will be made at the November skills test committee meeting to approve or deny the creation of this test.
6. If pairing DTP with yearbook to create a “year-long” course, students must be enrolled in either DTP I or DTP II for one of the semesters and the course must be called DTP I or DTP II. Courses called “yearbook” will be disapproved.
7. If funding is desired for the entire year, both DTP I and DTP II standards will need to be covered with both tests given.